

Report on the Marine Mollusca obtained during the First Expedition of Prof. A. C. Haddon to the Torres Straits, in 1888-89.
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[Read 16th February, 1899.]

(PLATES 10 & 11.)

EARLY in 1898 Prof. Alfred Cort Haddon, before starting upon a fresh journey of exploration to New Guinea, the coasts of tropical North Australia, and Queensland, favoured us with the request that we would take charge of all the Marine Mollusca collected at low tides, or dredged, during his first expedition to the same region, ten years previously, on the understanding that we would catalogue them and describe any new forms. This large mass of material had been for a long period lying at Cambridge, almost untouched, only a very few species having been identified by the Rev. A. H. Cooke.

The general condition of the specimens contained in the collection is, as might be expected, variable; but, though many of them are only in a fragmentary state, and the larger proportion of the Pelecypoda are mainly represented by single valves, they are in only rare instances past recognition, and, with the exception of an exceedingly small residuum, we have succeeded to our satisfaction in the work of identification.

Some few indeed, mainly Polyplacophora of three or four kinds, also *Haliotidæ* and various *Cypreæ*, are preserved in spirit, but all these Mollusca are well known, both anatomically and systematically.

The collection is, we consider, of more than usual interest, since its component parts differ in several notable particulars from the gatherings previously made in the same neighbourhood, thus tending to prove the extraordinary richness of molluscan life to be found there. And the area is by no means large, geographically speaking. Situate Long. 142° to 144° E., and Lat. 9° to 11° S., it is hardly more than 75 miles from the mainland of New Guinea, or at all events Saibai Island, to Cape York, N. Australia; this narrowing of the passage between the Arafura and the Coral Seas, through which the South Equatorial Current pours its waters, being some 90 miles in width, and universally known as the Torres Straits.

The whole of this area is contained within the great Indo-Pacific Marine Province, as proposed by S. P. Woodward, 1856, though the merging of that Province with the Australian is, speaking from the molluscan point of view, hazily defined only and, naturally, gradual. This Province is the largest by far, and likewise the most prolific in marine life of all, and though almost unwieldy, it should nevertheless, in our opinion, be still further extended so as to include Southern Japan, treated by Woodward and all who have followed him, as well as by Agassiz, as part of a separate region. The Indo-Pacific Province would then extend from the East coast of Africa, north of the Tropic of Capricorn, to the Red Sea, Persian Gulf, and Arabian Sea, round the whole coasts of India and its adjacent islands, southwards so as to include Madagascar, Mauritius, Bourbon, to Malaya, the East India Islands, and China coasts as far as, and inclusive of, Southern Japan, also taking in tropical Australia, and finally the Pacific Islands with Hawaii. Though so vast, we cannot see how with advantage this tract can be lessened or modified; and one is strengthened in this view when the distribution of many of the tropical Marine Mollusca is considered. The range, for instance, of the most abundant, e. g., *Cypræa helvola*, L., *Nassa arcularia*, L., or *Terebellum subulatum*, L., being that of the Province, even extending beyond its limits into the subtropical waters of Natal, or of Queensland and New South Wales.

Many of the species in the following Catalogue have this wide distribution; and with reference to this fascinating subject, it may be not out of place to refer briefly to the instructive remarks made by Prof. E. von Martens, when enumerating the Mollusca of the Mergui Archipelago*, a few years since. He mentions that out of nearly four hundred species, only one (*Natica unifasciata*, Lam.) was known to have occurred in the New World, besides three, also found on Atlantic shores, and even these were species liable to spread by means of drift-wood and other agencies.

There can be little doubt that an unusually large number of endemic forms occur in the region bounded north-westward and northward by the Philippines and Ladrone Islands, westward and to the east by the Arafura Sea and New Caledonian archipelago respectively, the Torres Straits forming part of its southernmost boundary.

* Journ. Linn. Soc., Zool. vol. xxi. p. 157 (1839).

From a scientific point of view, the following four Expeditions are the most important that have been made in past years to this region.

1. THE VOYAGE OF H.M.S. 'FLY.'

Dr. J. B. Jukes *, in 1842-46, exploring part of North Australia, with the South Papuan coasts, assiduously collected Mollusca. These were mostly described by Arthur Adams and Reeve, while Dr. J. E. Gray, in an appendix to Jukes's narrative, gave diagnoses of several important discoveries, e. g. *Voluta Sophia*, *Cypræa Comptoni*, &c.

2. THE VOYAGE OF H.M.S. 'CHALLENGER.'

The 'Challenger' Expedition †, 1873-76, dredged as follows :—
Station 184, August 29, 1874. E. of Cape York, N.E. Australia, 1400 fathoms; Globigerina-ooze.

Stations 185 & 185^b, Aug. 31, in the same locality, from 128 to 135 fathoms.

Sept. 7 & 8. Torres Straits and Flinders' Passage, 3-11 fathoms.

Station 186, Sept. 8, 1874. Wednesday Island, Cape York, and Albany Island, 3-12 fathoms; coral-mud.

Station 187, Sept. 9, 1874. W. of Cape York, 6 fathoms.

Station 188, Sept. 10. Off the S.W. of Papua, 28 fathoms; green mud.

Most of these soundings were successful, and a profusion of new Mollusca of great interest the result.

We are surprised that so few of these are in the collection now before us, as in some instances almost the same localities would seem to have been searched and traversed.

3. THE VOYAGE OF THE 'CHEVERT.'

This expedition started from Sydney early in 1876, Mr. John Brazier being the malacologist attached to the staff. He has published the results in a series of articles, dealing thoroughly

* Narrative of the Surveying Voyage of H.M.S. 'Fly,' commanded by Captain F. R. Blackwood, R.N., in Torres Straits, New Guinea, and other Islands of the Eastern Archipelago, during the years 1842-46. By J. Beete Jukes.

† Report on the Voyage of H.M.S. 'Challenger' during the years 1873-76. Zoology, vol. xiii. pp. 16-18; vol. xv. pp. 710-714.

with the Gastropoda, but the Pelecypoda, so far as we are aware, have not yet been treated. Many new forms, especially amongst the minutiora, are described, but unfortunately not figured, the types all remaining in Australia, we believe mostly in the Australian Museum, Sydney. For our own part, we have been as careful as possible in the comparison of all our undetected forms with these descriptions.

It is to be deplored that Mr. Brazier has not always used language the reverse of vague; still more unfortunate is it that as the Mollusca of the 'Chevert' Expedition were published before those of the 'Challenger,' we are given to understand that they claim priority in not a few instances over Dr. Boog Watson's concise, clear, and admirably illustrated diagnoses. This increase of synonymy is much to be deprecated, and we would press for an insistence of the rule that no mere verbal description should suffice, but that a figure must be published simultaneously, before a new species be recognized.

4. THE VOYAGE OF H.M.S. 'ALERT' *.

The full and very interesting account of the Mollusca obtained during this expedition has been of the utmost service to us while preparing this paper.

Indeed we are now, as upon many previous occasions, under a deep sense of obligation to Mr. Smith, who has compared with us all doubtful forms and given us every assistance at the British Museum (Natural History).

The specialities of this collection will be dealt with in their proper place. Suffice to state here that of the twenty-four species we consider new to science, one, a Neritoid with some superficial resemblance to *Vanikoro*, must stand as the type of a new genus; and a remarkable *Pholadomya*, with almost equilateral valves, is also noteworthy.

The arrangement adopted in the sequence of the following Catalogue is that of Paul Fischer, as given in the 'Manuel de Conchyliologie,' and we have also followed the same author to a great extent in the nomenclature.

* Report on the Zoological Collections made in the Indo-Pacific Ocean during the Voyage of H.M.S. 'Alert,' 1881-82. London (Brit. Mus.), printed by order of the Trustees, 1884. Mollusca, by Edgar A. Smith (pp. 34-116).

LIST OF COLLECTING STATIONS *, TORRES STRAITS, 1888.

1. Fringing reef and shore, Thursday Island.
2. 20 miles N.N.W. of Warrior Isl., $5\frac{1}{2}$ fathoms; broken shells and sand. Aug. 15, 1888.
3. Channel between Saibai and New Guinea, 10-17 fathoms; mud and rolled stones, dead shells; very few live animals came up in dredge, mainly sponges; of 3 dredge hauls 1 came up clean with Aleyonarians. Aug. 17, 1888.
4. Between Ormans Reef and the "Brothers Island," 6-7 fathoms. Aug. 18, 1888.
5. Boydong Cays shore. Aug. 26, 1888. (N. Queensland.)
6. 2 miles west of Boydong Cays, 14 fathoms; coral-mud and dead shells. Aug. 27, 1888.
7. Cockburn group, shore of small islet near the south of the three high islands. Aug. 27, 1888. (N. Queensland.)
8. Albany Pass, 10 fathoms; large quantity of sponges. Aug. 29, 1888.
9. Prince of Wales Channel, 8 fathoms; clear rocky bottom and red seaweed. Sept. 15, 1888.
10. Channel between Hammond Isl. and Wednesday spit, 5 fathoms; sand and small rounded pebbles, dead shells. Sept. 15, 1888.
11. Fringing reef, Mabuiag.
12. Channels between reefs, Mabuiag.
13. Fringing reef, Mèr (Murray Island).
14. Channels between reefs, Mèr.

CATALOGUE OF THE SPECIES.

PTEROPODA.

CAVOLINIIDÆ.

1. *CAVOLINIA LONGIROSTRIS*, Lesson.
Station 5, Boydong Cays.

GASTEROPODA.

SIPHONARIIDÆ.

2. *SIPHONARIA SIPHO*, Sow.
Station 5, Boydong Cays; Station 13, Murray Island.

* Where no precise locality is referred to, it must be understood that the labels attached to those species contained nothing more definite than "Torres Straits."

ACTÆONIDÆ.

3. ACTÆON SOLIDULUS, *L.*

Station 5, Boydong Cays.

TORNATINIDÆ.

4. TORNATINA GRACILIS, *A. Ad.*

Station 14, Mèr.

SCAPHANDRIDÆ.

5. ATYS DEBILIS, *Pease.*

Station 2, Warrior Island; Station 5, Boydong Cays.

6. ATYS (ALICULA) CYLINDRICA, *Helbling.*

Station 13, Murray Island.

7. CYLICHNA ARACHIS, *Q. & G.*

BULLIDÆ.

8. BULLA ADAMSI, *Menke.*

Station 13, Mèr; Station 5, Boydong Cays.

9. BULLA PUNCTULATA, *A. Ad.*

A West-American species (Panama, &c.), also New Caledonia (*Hadfield*), and various Australian localities (*Cox, Angas, &c.*).

10. HAMINEA BREVIS, *Q. & G.*

Station 2, Warrior Island.

11. HAMINEA CROCAT, *Pease.*

Station 2, Warrior Island; Station 5, Boydong Cays.

APLUSTRIDÆ.

12. APLUSTRUM AMPLUSTRE, *L.*

Station 13, Murray Island.

TEREBRIDÆ.

13. TEREBRA (SUBULA) MUSCARIA, *Lam.*14. TEREBRA (ABRETIA) AFFINIS, *Gray.*

Station 13, Mèr; Station 2, Warrior Island.

15. TEREBRA (MYURELLA) SUBULATA, *L.*

Station 13, Mèr.

CONIDÆ.

16. *CONUS MARMOREUS*, *L.*

Station 13, Mèr.

17. *CONUS (CORONAXIS) MINIMUS*, *L.*

Station 13, Mèr (Murray Island).

18. *CONUS (NUBECULA) STRIATUS*, *L.*

19. *CONUS (DENDROCONUS) FIGULINUS*, *L.*

20. *CONUS (LITHOCONUS) LITTERATUS*, *L.* var. *MILLEPUNCTATUS*, *Lam.*

21. *CONUS (RHIZOCONUS) MUSTELINUS*, *Hwass.*

22. *CONUS (RHIZOCONUS) VITULINUS*, *Hwass.*

23. *CONUS (CHELYCONUS) RADIATUS*, *Gmel.*

24. *CONUS (TEXTILE) CANONICUS*, *Hwass.*

25. *CONUS (HERMES) NUSSATELLA*, *L.*

26. *DRILLIA TORRESIANA*, *Smith.*

Station 8, Albany Pass.

27. *MANGILIA (GLYPHOSTOMA) RUGOSA*, *Migh.*

Station 13, Mèr.

28. *MANGILIA (CYTHARA) GRACILIS*, *Rve.*

Station 2, Warrior Island.

29. *MANGILIA (CYTHARA) PULCHELLA*, *Rve.*

30. *MANGILIA (CYTHARA) CHIONE**, sp. n. (Pl. 10. fig. 4.)

M. testa ovato-fusiformi, delicatula, nivea, lævigata; anfractibus, inclusis duobus apicalibus lævibus, septem, oblique et fortiter costatis, costis nitidus perlævibus, interstitiis lævigatis, parum nitentibus; apertura oblonga, labro paullum effuso, lævi; columella obscure denticulata. Long. 8, lat. 3.50 mm.

Station 13, Mèr (Murray Island).

A white, fusiform, delicate and very smooth species, seven-whorled (inclusive of the two apical), the lower whorls being strongly obliquely ribbed, the ribs not crowded, the interstices smooth, but not shining; aperture oblong, outer lip slightly effuse, smooth; columella in fine examples minutely denticulate, but worn in most of the examples seen.

* *χίον*, snow.

We also have this delicate *Mangilia* from Thursday Island, collected by Mr. Arnold Umfreville Henn, in fine condition.

OLIVIDÆ.

31. OLIVA (STREPHONA) EPISCOPALIS, *Lam.*

An albino form only; slightly deformed in the centre of the last whorl.

Station 5, Boydong Cays.

32. OLIVANCILLARIA (AGARONIA) NEBULOSA, *Lam.*

Station 13, Mèr.

MARGINELLIDÆ.

33. MARGINELLA (PERSICULA) OVULUM, *Sow.*

Station 13, Murray Island.

VOLUTIDÆ.

34. MELO DIADEMA, *Lam.*35. VOLUTA (AULICA) RUCKERI, *Crosse.*

Perhaps too near *V. piperita*, *Sow.*, to be more than a variety; but the red coloration is uniform in all examples we have inspected.

Station 2, Warrior Island.

36. VOLUTA (AULICA) RUTILA, *Brod.*

Station 2, Warrior Island.

37. VOLUTA (AULICA) SOPHIÆ, *Gray.*

With *V. nivosæ*, *L.*, and *V. Norrisi*, *Gray*, this constitutes a peculiar group—*V. Sophiæ* being quite constant in its markings of rows of transverse blackish-brown spots—extending in range only from the west coast of Australia to the Torres Straits.

Station 2, Warrior Island.

38. VOLUTA (SCAPHELLA) TURNERI, *Gray.*

Station 5, Boydong Cays.

MITRIDÆ.

39. MITRA EPISCOPALIS, *L.*40. MITRA (CHRYSAME) PEREGRINA, *Rze.*

41. MITRA (CHRYSAME) RUBRITINCTA, *Rve.*

Considered by some authors only a stunted variety of *M. ferruginea*, Lam., but in our opinion entitled to good specific rank.

Station 2, Warrior Island.

42. MITRA (STRIGATELLA) DECURTATA, *Rve.*

Station 4, between Ormans Reef and the Brothers Island.

43. MITRA (TURRICULA) CORRUGATA, *Lam.*

Station 13, Murray Island.

44. MITRA (VULPECULA) INTERMEDIA, *Kiener.*

Station 13, Murray Island.

45. MITRA (CASTELLARIA) MODESTA, *Rve.*

Station 2, Warrior Island.

46. MITRA (PUSIA) DICHROA, *Ad. & Rve.*

This species, with *M. tricolor*, Montr., *M. Græffei*, Cr., *M. lævizonata*, Sow., and others, is merged by Tryon in *Pusia luculenta*, Rve., but, we think, erroneously.

FASCIOLARIIDÆ.

47. FASCIOLARIA FILAMENTOSA, *Lam.*48. LATIRUS POLYGONUS, *Gmel.*, var. TESSELLATUS, *Kobelt.*

Characteristic examples of a form only hitherto reported from Mauritius.

49. LATIRUS (PERISTERIA) AUSTRALIENSIS, *Rve.*

Station 5, Boydong Cays.

TURBINELLIDÆ.

50. CYNODONTA CORNIGERA, *Lam.*51. SEMIFUSUS (MEGALATRACTUS) PROBOSCIDIFERUS, *Lam.*

No full-grown specimens were in the collection, but a large operculum, and a mass of nidamental capsules, containing, roundly speaking, fully one hundred and twenty embryonal young. These are all, without exception, decollate, seven- to eight-whorled, averaging 30 mm. longitudinally. The canal is fairly long, the last whorl showing a little of the adult sculpture, and slightly tumid.

This species is classed by Fischer (Man. de Conch. p. 623) as the type of his subgenus *Megalatractus* (1884). It is confined to the shores of Australia.

BUCCINIDÆ.

52. *CANTHARUS MOLLIS*, *Gld.*

Fine individuals, which we have compared with and cannot separate from the Japanese type.

Station 8, Albany Pass.

53. *ENGINA CONCINNA*, *Rve.*

Station 2, Warrior Island.

54. *ENGINA REEVEI*, *Tryon.*

Hab. North America and Mexico, also Australia (*J. Brazier*).

Station 5, Boydong Cays.

55. *PHOS SCALAROIDES*, *A. Ad.*

Station 5, Boydong Cays.

56. *NASSARIA SUTURALIS*, *A. Ad.*

This well-marked form is sparingly distributed from the Arabian Sea eastward, being particularly frequent at Bombay (*Abercrombie*) and Karachi (*Townsend*).

Station 8, Albany Pass.

NASSIDÆ.

57. *NASSA (ALECTRYON) SUTURALIS*, *Lam.*

Station 8, Albany Pass.

58. *NASSA (NIOTHA) ALBESCENS*, *Dkr.*

Station 13, Murray Island.

59. *NASSA (NIOTHA) CREMATA*, *Hinds.*

Station 8, Albany Pass.

60. *NASSA (ALECTRYON) FRETORUM* *, sp. n. (Pl. 10. fig. 3.)

N. testa breviter oblonga, spira acuminata, albo-cinerea, nitida; anfractibus octo, inclusis apicalibus tribus, lævibus, vitreis, cæteris regulariter longitudinaliter plano-costatis, costis nitidis, lævibus, apud suturas impressis, et infra, juxta suturas, transversim unisulcatis, et sparsim brunneo-maculatis, liris transversis aliter absentibus, ultimo anfractu infra medium

* *Fretorum*, i. e. *Torresianorum*, inhabiting the Torres Straits.

usque ad basim transversim multiplicato; apertura ovata, labro extus paulum effuso, circa columellam nitide calloso, perlævi, intus striato, ad marginem denticulato, canali brevi. Long. 12, lat. 6 mm.

Station 2, Warrior Island.

We have in vain tried to match this small species. It is undoubtedly an *Alectryon*, its congeners being *N. monile*, Kien., and allies, although, from the description, *N. (Niotha) multicostata*, A. Ad., a species included in the section remarkable for the deep transverse sulcations, but which are obsolete in it, comes very near *N. fretorum*. Our species would seem to differ in the conspicuous spiral sulcation just below the sutures, in the broader contour in proportion to the length, and one or two minor details. We are especially indebted to Mr. Ernest R. Sykes for carefully comparing this *Nassa* with the incomparable series in the National Collection, South Kensington.

61. *NASSA (NIOTHA) ROTUNDA*, Melv. & Stand. (Journ. of Conch. vol. viii. p. 273, pl. ix. fig. 2, 1896.)

One of the few molluscs, lately described by us from Lifu, that has occurred in this collection. Its nearest ally is *N. plebecula*, Gld.

Station 2, Warrior Island.

62. *NASSA (HIMA) PLEBECULA*, Gld.

Station 5, Boydong Cays.

COLUMBELLIDÆ.

63. *COLUMBELLA VARIANS*, Sow.

Station 13, Mèr.

64. *COLUMBELLA (PYGMÆA) FULGURANS*, Lam.—*α. eufulgurans*; *β. punctata*, Lam.

A series embracing the type with zigzag lines on a black ground, merging into the condition in which the white streaks are broken up into rounded or triangular white spots, and evidently occurring together.

Station 2, Warrior Island; Station 13, Mèr (Murray Island); Station 5, Boydong Cays.

65. COLUMBELLA (PYGMÆA) TYLERI, *Gray*.

Station 5, Albany Pass.

66. COLUMBELLA (PYGMÆA) VERSICOLOR, *Sow*.

Station 12, Mabuag, 4 fathoms (Oct. 1888).

67. COLUMBELLA (ATILIA) GALAXIAS, *Rve*.

Station 5, Boydong Cays.

[68. COLUMBELLA (MITRELLA) SEMICONVEXA, *Lam*.

Station 5, Boydong Cays.

69. COLUMBELLA (CONOIDEA) FLAVA, *Brug*.

Station 13, Murray Island ; Station 8, Albany Pass.

MURICIDÆ.

70. MUREX BREVISPIÑA, *Lam*.

Station 13, Murray Island.

71. MUREX (CHICOREUS) ADUSTUS, *Lam*.

Station 13, Mèr.

Var. FUSCUS, *Dkr*.

Excepting in the reddish-brown colour of the varices, we cannot trace any specific distinction between this and the typical *M. adustus*, *Lam*.

Station 8, Albany Pass.

72. MUREX (CHICOREUS) AXICORNIS, *Lam*.

Station 13, Mèr.

73. MUREX (CHICOREUS) CAPUCINUS, *Lam*.

The vague locality "Philippines," that has been given in our text-books for this species, has been considered unauthentic, as the west coast of South America (Chili) seems to be its headquarters. Its occurrence therefore in the Torres Straits is very interesting.

74. MUREX (PTERONOTUS) SAIBAIENSIS, sp. n. (Pl. 10. fig. 1.)

M. testa trigona, tenui, calcarea, albido-cinerea; anfractibus 5-6, apicali mamillari, vitreo, cæteris trivariosis, varicibus foliatis, uni-angulatis, expansis, spiraliter liratulis, apud medium anfractûs ultimi simul ac penultimi, inter varices noduliferis; apertura ovata, peristomate foliaceo, delicate squamulato, canali producta, lata. Long. 18, lat. 13 mm.

Between Saibai I. and New Guinea, 10-17 fathoms (Station 3).

A delicate *Pteronotus* which, though apparently full-grown, may yet add two or three varices to its stature before attaining perfection, without in any way altering the characteristic contour of its whorls. It is impossible to match this form exactly with any described species, though its affinities lie with *triformis*, Reeve, *acanthopterus*, Lam., and *eurypteron*, Reeve. It is trigonous, light in texture, of a chalky consistency, cinereous white, five- or six-whorled, these each possessing three varices, and towards the centre of the penultimate whorl, as well as the lowest, nodulous squamæ are noticeable between each varix. The surface is spirally, finely but rather unevenly lirate, the varices being once-angled on the last whorl, immediately below the sutures. Aperture oval, outer lip beautifully fimbriate-squamose, canal prolonged and somewhat broad. Operculum not present.

75. MUREX (OCINEBRA) SALMONEUS*, sp. n. (Pl. 10. fig. 2.)

M. testa parva, breviter fusiformi, carnea, purpurea vel pallide punicea, multum corrugata; anfractibus septem, arcte variciferis, varicibus pulchre fimbriatulis, costis fistulosis transversim connexis; apertura rotunda, labro extus paullum expanso, fimbriato, incrassato; canali brevi, recurva. Long. 12·50, lat. 6 mm.

This little *Ocinebra* is shortly fusiform, brightly coloured, either pale flesh-colour, pink, or purple, seven-whorled, many-variced, the varices beautifully fringed or squamose, crossed spirally by fistulose ribs; aperture round; canal short, slightly recurved; outer lip expanded, thickened, fringed.

76. MUREX (CHICOREUS) CERVICORNIS, Lam.

77. MUREX (CHICOREUS) RAMOSUS, L.

Station 13, Murray Island.

78. PURPURA ALVEOLATA, Reeve.

Station 13, Murray Island.

79. PURPURA PERSICA, L.

Station 13, Murray Island.

80. PURPURA (THALESSA) HIPPOCASTANUM, Lam.

Station 2, Warrior Island.

* *Salmonius*, from the prevailing carneous hue.

81. *PURPURA (STRAMONITA) RUSTICA, Lam.*

Station 13, Murray Island.

82. *PURPURA (CRONIA) AMYGDALA, Kiener.*

Station 13, Murray Island; Station 8, Albany Pass.

83. *SISTRUM ARACHNOIDES, Lam.*

Station 2, Warrior Island.

84. *SISTRUM CAVERNOSUM, Rve.*

Station 13, Mèr; Station 5, Boydong Cays.

85. *SISTRUM CHRYSOSTOMUM, Desh.*

Station 2, Warrior Island.

86. *SISTRUM CONCATENATUM, Lam.*

Station 13, Murray Island.

87. *SISTRUM ELATUM, Blainv.*

Station 5, Boydong Cays.

88. *SISTRUM FISCELLUM, Chemn.*

Station 5, Boydong Cays.

89. *SISTRUM HEPTAGONALE, Rve.*

Station 5, Boydong Cays.

90. *SISTRUM MARGARITICOLUM, Brod.*

Originally described by Broderip as a *Murex* from Lord Hood's Island, this has been found, in its typical form, generally distributed throughout the eastern tropical area, occurring as far north as the coasts of Baluchistan (*Townsend*).

91. *SISTRUM OCHROSTOMA, Blainv.*

Station 2, Warrior Island.

TRITONIDÆ.

92. *AQUILLUS (SIMPULUM) GEMMATUS, Rve.*

Station 13, Murray Island.

93. *AQUILLUS (SIMPULUM) PILEARIS, L.*

94. *EPIDROMUS ANTIQUATUS, Hinds.*

95. *EPIDROMUS BEDNALLI, Brazier.*

Varying in size, but not in sculpture, our largest specimen being long. 11, lat. 5 mm.

96. *GYRINEUM (LAMPAS) RANELLOIDES, Rve.*

Station 13, Murray Island.

97. GYRINEUM (EUPLEURA) JUCUNDUM, *A. Ad.*

In almost every particular, save that of size, this is the exact counterpart of the well-known *Eupleura perca* (Perry), *pulchra* (Gray).

Station 13, Murray Island.

98. GYRINEUM (APOLLON) PUSILLUM, *Brod.*

Mostly of the white variety with violaceous aperture, the largest example of all being uniformly whitish-ochreous.

Station 13, Murray Island.

CASSIDIDÆ.

99. CASSIS (CASMARIA) VIBEX, *L.*100. CASSIS (SEMICASSIS) TORQUATA, *Rve.*

DOLIIDÆ.

101. DOLIUM PERDIX, *L.*102. DOLIUM VARIEGATUM, *Lam.*103. DOLIUM (MALEA) POMUM, *L.*

Station 5, Boydong Cays.

CYPRÆIDÆ.

104. OVULA (RADIUS) ANGAST, *A. Ad.*

Station 11, Mabuiag.

105. CYPRÆA FELINA, *Gray.*

Station 5, Boydong Cays.

106. CYPRÆA (ARICIA) ANNULUS, *L.*107. CYPRÆA (ARICIA) ARABICA, *L.*108. CYPRÆA (LUPONIA) ERRONES, *L.*

Some of the nidamental capsules are also present, consisting of coagulated masses of one hundred or more pellucid oval eggs.

Station 9, Prince of Wales Channel.

109. CYPRÆA (LUPONIA) FLAVEOLA, *L.*

Station 13, Murray Island.

110. CYPRÆA (LUPONIA) LYNX, *L.*111. CYPRÆA (LUPONIA) ZICZAC, *L.*

Station 13, Murray Island ; Station 2, Warrior Island.

112. *TRIVIA ORYZA*, *Lam.*

Station 13, Murray Island.

113. *TRIVIA STAPHYLÆA*, *L.*

Station 13, Murray Island.

STROMBIDÆ.

114. *STROMBUS (GALLINULA) CAMPBELLI*, *Gray.*

Station 10, Channel between Hammond Island and Wednesday Spit.

115. *STROMBUS (GALLINULA) CANARIUM*, *L.*

Station 13, Murray Island.

116. *STROMBUS (GALLINULA) ISABELLA*, *Lam.*

In our opinion a mere variety of *S. canarium*, *L.*, but some authors place specific reliance on the thinner substance and absence of freckled marking. The distribution of the two species is the same.

Station 13, Murray Island.

117. *STROMBUS (GALLINULA) SIBBALDI*, *Sow.*

Hitherto considered endemic in Ceylon, a remarkable extension of range is now presented.

Station 2, Warrior Island.

118. *STROMBUS (GALLINULA) URCEUS*, *L.*

Station 13, Murray Island.

119. *STROMBUS (GALLINULA) VARIABILIS*, *Swains.*

120. *STROMBUS (GALLINULA) VITTATUS*, *L.*

Young, but finely coloured, being tessellated with brown. There is also in the collection, from Mèr, a very remarkable but juvenile form, slightly variced, white, fusiform, and closely striate throughout.

Station 4, between Ormans Reef and the Brothers Island; Station 13, Mèr; Station 5, Boydong Cays.

121. *STROMBUS (CANARIUM) DENTATUS*, *L.*

Only, we think, a sub-species of *S. urceus*, *L.*, but at all events it is the prevailing form.

Station 13, Mèr (Murray Island).

122. *STROMBUS (MONODACTYLUS) LAMARCKI*, *Gray.*

123. *STROMBUS (MONODACTYLUS) MELANOSTOMUS*, *Swains.*

124. STROMBUS (CONOMUREX) LUHUANUS, *L.*
Station 13, Murray Island.

125. PTEROCERA (HEPTADACTYLUS) LAMBIS, *L.*
Station 13, Mèr (Murray Island).

126. SERAPHS TEREHELLUM, *L.*
Station 13, Mèr.

CERITHIIDÆ.

127. TRIFORIS GIGAS, *Hinds.*
The largest example measures 42 mm. in length.
Station 13, Mèr.

128. TRIFORIS (INO) EXCELSIOR, sp. n. (Pl. 10. fig. 5.)

T. testa producta, multum attenuata, angusta, brunnea, hic illic rufo-maculata; anfractibus quinque- vel sex-et-viginti, tornatis, apud suturas elevatis, transversim arete tricarinatis, lævibus; carina infra, juxta suturas, minore, duabus alteris magis conspicuis, interstitiâ interveniente planata, ultimo anfractu quadricarinato, carina bina ad peripheriam addita; apertura rotunda, parva, canali breviter recurvirostri, in uno specimine pone aperturam ipsam clausa. Long. 30, lat. 5 (sp. maj.) mm.

Four or five, mostly imperfect, examples. The form is much acuminate and attenuate, narrow; colour light brown, here and there indistinctly flecked with rufous spotting; whorls 25 or 26, tornate, smooth, elevated at the sutures, closely thrice-keeled transversely, the keel just below the sutures is smaller and less conspicuous than the two lower, the last whorl is four-keeled, there being two on the periphery; the aperture is roundish, small; in one (the most perfect) specimen the recurved and beaked canal is closed with shelly matter behind the aperture.

The only species to which, in size, this very conspicuous *Triforis* could be referred is *T. gigas*, Hinds, also occurring in the same localities. The sculpture, as seen by the above description, is however totally different, being smooth, with no interstitial pitting or gemmuled ribs of any kind. Owing to no one specimen being in a state of absolute perfection, we have been compelled to estimate the number of whorls and the dimensions generally with the aid of two or more examples, each complete in some one particular.

129. *CERITHIUM CITRINUM*, *Sow.*

Station 4, between Ormans Reef and the Brothers Island.

130. *CERITHIUM ECHINATUM*, *Lam.*

Station 5, Boydong Cays.

131. *CERITHIUM MORUS*, *Lam.*

Very abundant. A reddish variety also occurs at the Mèr Station.

Station 2, Warrior Island; Station 13, Mèr; Murray Island; Station 4, between Ormans Reef and the Brothers Island.

132. *CERITHIUM NOVÆ-HIBERNIÆ*, *A. Ad.*

Station 13, Mèr.

133. *CERITHIUM PETROSUM*, *Wood.*

The name "*tuberculatum*," having been twice used by Linnæus, must be abandoned in favour of that of Wood.

Station 2, Warrior Island; Station 4, between Ormans Reef and the Brothers Island.

134. *CERITHIUM PIPERITUM*, *Sow.*

Station 13, Murray Island.

135. *CERITHIUM SALEBROSUM*, *Sow.*

Only broken individuals occurred, referred with some little doubt as above. The finest examples we have seen of *C. salebrosus* come from Lifu (*Hadfield*). It is rare, and found generally, though sparingly, in the Philippines, with south-eastward extension of range.

Station 5, Boydong Cays.

136. *CERITHIUM VARIEGATUM*, *Quoy.*

This, as identified by Mr. E. A. Smith (Voy. of H.M.S. 'Alert,' 1881-2, p. 64), is a variety of the protean *C. morus*, L., from which it differs in its more attenuate fusiform shape, and the colour-banding, with a smaller series of apical tubercles.

137. *CERITHIUM ZEBRUM*, *Kiener.*138. *CERITHIUM (VERTAGUS) ALUCO*, *L.*

Station 5, Boydong Cays.

139. *CERITHIUM (VERTAGUS) LINEATUM*, *Lam.*

We do not agree with Tryon (Man. Conch. ix. p. 148) that this is a variety of *C. asper*, Lam. The shell is uniformly

coarser, besides being, in proportion to its length, larger in all its parts, and often spirally banded.

140. *CERITHIUM* (*VERTAGUS*) *PULCHRUM*, *A. Ad.*

Station 2, Warrior Island.

141. *CERITHIUM* (*VERTAGUS*) *SOWERBYI*, *Kiener.*

Station 5, Boydong Cays.

142. *CERITHIUM* (*VERTAGUS*) *VERTAGUS*, *L.*

Station 5, Boydong Cays.

143. *CERITHIUM* (*LAMPANIA*) *ZONALE*, *Brug.*

Station 5, Boydong Cays.

144. *CERITHIUM* (*COLINA*) *CONTRACTUM*, *Sow.*

We consider this distinct from the type of *Colina*, *C. pinguis*, *Ad.*, being attenuate, contracted, nine- or ten-whorled, the three last whorls almost straight and of uniform thickness. The species are now being frequently found in the North Indian Ocean, and in other places, *C. pinguis* having been formerly considered peculiar to South Africa.

Station 13, Mèr.

145. *CERITHIUM* (*COLINA*) *TÆNIATUM*, *Sow.*

Station 13, Murray Island.

146. *BITTIUM* *TORRESIENSE*, sp. n. (Pl. 10. fig. 6.)

B. testa parva, elongato-cylindræa, pallide ochracea vel fulva et albo-maculata; anfractibus undecim, apicalibus inclusis tribus, albidis (vel, in altero specimine, fulvis), uniformibus, perparvis, lævibus, tribus his proximis pulchre gradatis, cæteris apud suturas impressis, longitudinaliter recte gemmato-costulatis, quinque ordinibus spiraliter dispositis, in specimine typico gemmis vel tuberculis hic ochraceis, illic albidis, ultimo anfractu ad basim liris quinque concentrice prædito, apertura ovata, canali brevissimo, peristomate tenui. Long. 5, lat. 2 mm.

Station 14, channels between reefs, Mèr.

We have given much attention to the deep-sea forms of *Bittium*, especially those described in the Reports of H.M.S. 'Challenger' from N.E. Australia and the Torres Straits. The only one which could challenge comparison with the shells before us is *B. xanthum**, Watson, but in the following

* Cf. Voyage H.M.S. 'Challenger,' Gastropoda, vol. xv., Zoology, p. 537.

particulars *B. torresiense* seems to differ:—first, the texture is more delicate in Watson's species; secondly, the tuberculated gemmæ, forming longitudinal ribs, are closer, and the interstices simple, with no intervening liræ whatsoever. The whorls are eleven in our species, as against eight, and the apical whorls are similar, both in number and form, but the painting is different, being flecked in one type with white. The dimensions are similar.

Three examples.

147. POTAMIDES (TYMPANOTONUS) PALUSTRIS, *L.*

148. POTAMIDES (TYMPANOTONUS) RETIFERUS, *Sow.*
Station 1, Thursday Island.

149. POTAMIDES (TEREBRALIA) SULCATUS, *Born.*
Station 13, Mèr.

MODULIDÆ.

150. MODULUS OBTUSALIS, *Phil.*

PLANAXIDÆ.

151. PLANAXIS SULCATUS, *Born.*

"In interstices of coral shore-rock, the smaller being from extreme high water-line, the larger a very little lower down" (*A. C. H.*).

Station 5, Boydong Cays.

152. PLANAXIS (QUOYIA) DECOLLATUS, *Quoy.*
All of a dwarf form.

TRICHOTROPIDIDÆ.

153. SEPARATISTA BLAINVILLEANA, *Petit.*

A very large and perfect example, the dimensions of which are: long. 11, diam. 17 mm., thus much exceeding that of the others recorded. It is a rare inhabitant of the Pacific islands, and has not before been known to occur in the region embraced by our paper.

Flinders' Entrance, near Mèr, 20 fathoms, Dec. 21st, 1888.

VERMETIDÆ.

154. VERMETUS (SIPHONIUM) MAXIMUS, *Sow.*
Station 12, Mabuiag.

155. VERMETUS (BIVONIA) QUOYI, *H. & A. Ad.*

Three varieties—cinereous, pale purple, and flesh-coloured.

Station 13, Mèr.

156. VERMETUS (THYLACODES) NOVÆ-HOLLANDIÆ, *Rouss.*

An obliquely concentrically rugose shell, attached to branches of madreporæ. Endemic, so far as Australian shores are concerned.

Station 13, Mèr.

157. SILIQUARIA CUMINGII, *Mörch.*

Station 5, Boydong Cays.

158. SILIQUARIA PONDEROSA, *Mörch.*

A fine series, showing much variation in torsion.

Station 4, between Ormans Reef and the Brothers Island ; Station 1, Thursday Island ; Station 13, Mèr.

TURRITELLIDÆ.

159. TURRITELLA MULTILIBATA, *Ad. & Ree.*

Station 5, Boydong Cays.

160. MATHILDA EURYTIMA, *Melv. & Stand.*

(Journ. of Conch. vol. viii. 1896, p. 310, pl. xi. fig. 73.)

Precisely agrees, in sculpture and detail, with our *Loyalty* Island type.

LITTORINIDÆ.

161. LITTORINA FILOSA, *Sow.*

Station 13, Murray Island.

162. LITTORINA (MELARAPHE) MAURITIANA, *Lam.*

Station 5, Boydong Cays.

163. TECTARIUS MALACCANUS, *Phil.*

Station 5, Boydong Cays.

LITIOPIDÆ.

164. DIALA ALBUGO, *Wats.*

Station 5, Boydong Cays.

165. ALABA PYRRHACME, *Melv. & Stand.*

(Journ. of Conch. vol. viii. 1896, p. 310, pl. ix. fig. 70, as *Rissoa.*)

Agreeing with the Loyalty Island types (*Hadfield*), and also with examples from Thursday Island (*A. U. Henn*).

Station 5, Boydong Cays *.

RISSOIDÆ.

166. RISSOINA SCOLOPAX, *Souv.*

Identical with Loyalty Island examples (*Hadfield Coll.*).

Station 5, Boydong Cays.

167. RISSOINA THAUMASIA, *Melv. & Stand.* (Journ. of Conch. vol. ix. 1898, p. 31, pl. i. fig. 3.)

This agrees exactly with the Madras type (*J. R. Henderson* and *E. Thurston*, in Mus. Brit.).

168. RISSOINA TRIANGULARIS, *Wats.*

We have this from Thursday Island (*A. U. Henn*).

Station 5, Boydong Cays.

169. RISSOINA (PHOSINELLA) CLATHRATA, *A. Ad.*

Station 5, Boydong Cays.

170. RISSOINA (MOERCHIELLA) SPIRATA, *Sow.*

Two varieties, one of which approaches var. *deformis*, Sow., the other var. *artensis*, Montr., a New Caledonian form.

Station 2, Warrior Island ; Station 13, Mèr.

CAPULIDÆ.

171. CALYPTRÆA TORTILIS, *Rve.* (= *C. equestris*, L., var. ?).

Station 5, Boydong Cays.

VANIKORIDÆ.

172. VANIKORO CANCELLATA, *Lam.*

A smooth variety, exhibiting hardly any dorsal cancellation. It is the type of the genus, named after the Island Vanikoro in the Pacific Ocean. The name, though barbarous, should, in our opinion, be retained, as the genus was definitely described by Quoy and Gaimard in 1832, thus having precedence over *Merria*, Gray, 1839 ; and a yet longer period over *Leucotis*, Swainson, 1840, and *Narica*, Récluz, 1841.

* Mr. C. Hedley, in his Mollusca of Funafuti (Mem. Austral. Mus. iii. p. 43, 1899), makes our *A. pyrrhacme* the type of his new genus *Obtortio*.

NATICIDÆ.

173. NATICA AREOLATA, *Récluz*.

Station 5, Boydong Cays.

174. NATICA GAULTIERIANA, *Petit*.

Station 5, Boydong Cays.

175. NATICA (NEVERITA) BICOLOR, *Phil*.

176. NATICA (MAMMA) AURANTIA, *Lam*.

Station 6, Mèr.

177. NATICA (MAMMA) FLEMINGIANA, *Récluz*.

Station 5, Murray Island; Station 6, Mèr; Station 5, Boydong Cays.

IANTHINIDÆ.

178. IANTHINA SMITHIÆ, *Rve*.

An Australian form hardly differing from the common *I. fragilis*, L.

Station 5, Boydong Cays.

SCALARIIDÆ.

179. SCALARIA LYRA, *Sow*.

Station 5, Boydong Cays.

180. SCALARIA OBLIQUA, *Sow*.

Station 5, Boydong Cays.

181. SCALARIA SUBAURICULATA, *Souvb*.

Station 5, Boydong Cays.

182. EGLISIA TRICARINATA, *Ad. & Rve*, Voy. 'Samarang,' p. 49.

The single example is very imperfect, but possesses two anfractual carinæ only, on the upper whorls. *Turritella leptomita*, Melv. & Sykes (Proc. Mal. Soc. ii. p. 176, pl. xiii. figs. 12, 12 a), represents a very nearly allied species from the Andamans, the whorls possessing three to four keels on the upper, four at least on the lowest whorl. So rarely found are these nearly allied *Eglisiæ* that the anatomy is practically unknown, but the operculum being scalaroid they have on this account been transferred from the Turritellidæ to the Sculariidæ.

Station 5, Boydong Cays.

183. *SCALIOLA ELATA*, *Semper*.

Station 5, Boydong Cays.

EULIMIDÆ.

184. *EULIMA AUSTRALASIACA*, sp. n. (Pl. 10. fig. 7.)

E. testa fusiformi, politissima, crassiuscula, paullum incurva; anfractibus 10-11, condensatis, lacteis, apud suturas paullulum impressis, ultimo anfractu crasso, varicibus obsoletis; apertura ovata, peristomate præsertim apud basim, incrassato, lævissimo. Long. 7, lat. 3 mm.

A very shining, polished, milky-white, opaque *Eulima*, fusi-form, slightly incurved, ten- or eleven-whorled, apex small; whorls very slightly impressed at the sutures, the last whorl thickened, especially towards the base; aperture oval; peristome thick, exceedingly smooth.

This species slightly resembles *E. latipes*, Watson, collected at Flinders' Passage, Torres Straits, in 7 fathoms, during the 'Challenger' Expedition, but is much larger in every part, and the spire does not so rapidly contract. The aperture, too, is large proportionately. The lateral varices are quite inconspicuous or obsolete.

185. *EULIMA (LEIOSTRACA) ACICULA*, *Gould*.

Station 14, Mèr.

PYRAMIDELLIDÆ.

186. *OBELISCUS TEREHELLOIDES*, *A. Ad.*

Possibly a variety, but, if so, a very remarkable one, of *O. dolabrata*, L., being much narrower in proportion, more numerous in the whorls, with the columellar plicæ but two in number.

Station 5, Boydong Cays.

187. *CINGULINA SPINA*, *Cr. & Fischer*.

Station 5, Boydong Cays.

NERITIDÆ.

188. *NERITA POLITA*, *L.*; and var. *AURORA*, *Dkr.*

Station 13, Murray Island; Station 5, Boydong Cays.

189. *NERITA SIGNATA*, *Macleay*.

Station 5, Boydong Cays.

190. *NERITA UNDATA*, *L.*

Station 4, Ormans Reef ; Station 13, Murray Island ; Station 5, Boydong Cays.

191. *NERITA* (*THELICOSTYLA*) *ALBICILLA*, *L.*192. *NERITA* (*PELERONTA*) *FUNICULATA*, *Rve.*193. *NERITA* (*PELERONTA*) *PLICATA*, *L.*

Station 13, Mèr (Murray Island).

MAGADIS *, genus novum.

Testa imperforata, depressa, orbicularis, albo-calcareo, longitudinaliter arcte lamellata, lamellis irregularibus; anfractus 3, quorum apicalis obtusus, globularis, interstitiæ inter lamellas arcte et pulcherrime sub lente spiraliter striatæ; apertura lunaris; peristoma rotundum, fere continuum; labri intus margo columellaris latus, planatus, dentibus minutissimis præditus, extus crassiusculus, planatus, lævis. Operculum ?

194. *MAGADIS EUMERINTHA* †, sp. n. (Pl. 10. figs. 8, 8 a.)*M.* testa ut suprâ. Alt 2·25, diam. 4·50 mm.

Station 14, Mèr, channels between reefs.

A truly remarkable mollusc, and one for the reception of which it is imperative to create a new genus. It is undoubtedly a neritoid, but the close longitudinal lamellæ suggest affinity with *Vanikoro*, Quoy, e. g. *V. Gueriniana*, Récluz.

It is unlike any shell known, either recent or fossil, being small, depressed, orbicular, imperforate, of a chalky yellowish-white consistency, longitudinally closely lamellate, three-whorled (inclusive of the obtuse and globular apical whorl); the interstices between the lamellæ are everywhere closely and very beautifully striate; aperture lunar and wholly neritoid; columellar area straight, wide, and furnished with numerous very fine and minute teeth; peristome almost continuous; outer lip lunar, smooth, somewhat thickened. We have not seen the operculum.

* *μαγάdis*, a harp.† *Eumerintha*, εὖ μήπως, well furnished with strings or lamellæ.

TURBINIDÆ.

195. PHASIANELLA (ORTHOMESUS) NIVOSA, *Rve.*
Station 8, Albany Pass; Station 5, Boydong Cays.

196. TURBO MARMORATUS, *L.*
Station 13, Murray Island.

197. TURBO PETHOLATUS, *L.*
Station 13, Mèr.

198. TURBO (SENECTUS) ARGYROSTOMUS, *L.*
Station 2, Warrior Island; Station 13, Mèr.

199. TURBO (SENECTUS) CHRYSOSTOMUS, *L.*
Station 2, Warrior Island; Station 13, Mèr.

200. TURBO (SENECTUS) FOLIACEUS, *Phil.*

201. TURBO (SENECTUS) SPARVERIUS, *Gmel.*

202. ASTRALIUM PETROSUM, *Mart.*
Station 2, Warrior Island; Station 13, Mèr (Murray Island).

TROCHIDÆ.

203. TROCHUS (TECTUS) FENESTRATUS, *Gmel.*

204. TROCHUS (LAMPROSTOMA) MACULATUS, *L.*

205. CLANCULUS ATROPURPUREUS, *Gld.*
Station 10, Channel between Hammond Island and Wednesday Spit.

206. CLANCULUS UNEDO, *A. Ad.*
Station 13, Mèr.

207. CANTHARIDUS TORRESI, *E. A. Smith.*
Station 13, Mèr.

208. MONODONTA CANALIFERUS, *Lam.*
Station 13, Mèr.

209. CHRYSOSTOMA PARADOXUM, *Born.*
Station 13, Murray Island; Station 5, Boydong Cays.

210. UMBONIUM VESTIARIUM, *L.*
Station 13, Mèr; Station 5, Boydong Cays.

211. *MINOLIA GLAPHYRELLA*, *Melv. & Stand.* (Jour. of Conch. vol. viii. 1895, p. 125, pl. iii. fig. 18.)

Agreeing with the type from Lifu (*Hadfield Coll.*). The peculiar style of apical liration, and the presence of a distinct peripheral angle, together with the difference in coloration—*glaphyrella* being almost invariably straw-coloured and blotched below the suture with equidistant brown spots—distinguish this from *M. pudibunda*, Fischer.

Station 5, Boydong Cays.

212. *MINOLIA PUDIBUNDA*, *Fischer.*

Station 5, Boydong Cays.

213. *MINOLIA VITILIGINEA*, *Mke.*

Station 14, Mèr.

214. *CALLIOSTOMA (EUTROCHUS) SEPTENARIUM**, sp. n. (Pl. 10. fig. 9.)

C. testa conica, profunde sed anguste umbilicata, solida; anfractibus septem, duobus apicalibus applanatis, vitreis, cæteris arctissime et pulchre transversim septem-costulatis, costis gemmuliferis, interstitiis obliqui-striatis, ultimo anfractu apud peripheriam acutangolo, ad basim novem lilarum concentricis ordinibus prædito, circa umbilicum ipsum paullum calloso; apertura quadratula, labro crassiusculo, marginem apud columellarem unidentato, apud umbilicum parum reflexo. Alt. 10·50, diam. 9 mm.

Station 8, Albany Pass, 10 fathoms, Aug. 29, 1888.

A pyramidally conical shell, deeply but narrowly umbilicate, solid; whorls seven, all, with the exception of the two apical which are smooth and glossy, being closely spirally seven-ribbed, these ribs thickly and regularly formed of gemmæ, contiguous and crowded, the interstices between these beaded riblets are indistinctly obliquely striated; the last whorl is sharply angled at the periphery, and at the base there are eight or nine concentric rows of the same kind of beaded ribs as under the whorls, the interstices very similarly obliquely striate; the aperture square, outer lip slightly thickened, whilst at the columellar

* *Septenarius*, "consisting of seven," in allusion to the spiral beaded riblets, uniformly seven in each whorl.

margin a small central tooth is observable. A resemblance, but merely superficial, may be traced to *C. fragum*, Phil.

215. *CALLIOSTOMA SPECIOSUM*, *A. Ad.*

216. *EUCHELUS ANGULATUS*, *Pease.*

217. *EUCHELUS ATRATUS*, *Gmel.*

Station 13, Mèr ; Station 2, Warrior Island.

DELPHINULIDÆ.

218. *DELPHINULA FORMOSA*, *Rve.*

Station 13, Mèr.

219. *LIOTIA VARICOSA*, *Rve.*

Station 1, Thursday Island.

CYCLOSTREMATIDÆ.

220. *MICROTHERCA ACIDALIA*, sp. n. (Pl. 10. figs. 10, 10 a.)

M. testa candida, depresso-globosa, sculpturata, profunde umbilicata ; anfractibus quatuor, quorum apicali simplici, nitido, cæteris transversim pulcherrime carinatis, antepenultimo tribus, penultimo, cum ultimo, quatuor carinis præditis, arcete noduloso-gemmatiss, gemmis nitidissimis, interstitiis transversim arcete liratis, ultimis anfractu effuso ; regionem circa umbilicarem incrassato, nitido, plus minus crenulato, fere lævi ; apertura rotunda, peristomate crassiusculo, continuo ; operculo . . . ? Alt. 3·50, lat. 5 mm.

Though small, one of the most exquisite shells yet discovered. It is pure white, depressedly globular, four-whorled, inclusive of the small and shining apical whorl, the remaining three being in the uppermost or antepenultimate whorl thrice transversely or spirally keeled, in the two lower whorls four times ; these keels or spiral ribs are closely studded with, or indeed composed of, white shining gemmæ which are round, crowded, and brilliant ; the rest of the shell is finely and delicately spirally lirate or sculptured. Aperture round, white within ; peristome thin, continuous. The basal portion of the surface is thickened round the umbilical region and more or less crenulate.

M. crenellifera, *Ad.*, the type of the genus, which we have received from Bombay (*Abercrombie*), though originally reported from Japan only, has the base and thickened crenulate umbilica

ornamentation very similar, but differs in form, being more elongate and quite smooth and plain to the apex. Pilsbry* queries *Microtheca* as a probable subgenus of *Teinostoma*, Ad., but our strong opinion is that it should be separated generically. In *Teinostoma* the callosity entirely covers the umbilicus. We should, indeed, consider *Microtheca* nearer *Cyclostrema*, Marryat.

The type, *M. crenellifera*, to which allusion has just been made, was originally described by Adams as a species of *Isanda*, Ad., with which it possesses a certain amount of conchological affinity; but until the anatomy of these minute molluscs be more diligently studied, the compilation of special monographs is useless, and no arrangement can be other than purely tentative.

The species before us is, however, much nearer *M. crenellifera*, Ad., than *Isanda coronata*, Ad., which last we have received from the Papuan region, though it does not occur in Dr. Haddon's present collection. We have also obtained it from shell-sand collected a few years ago by Mr. Arnold Umfreville Henn, at Magnetic Island, Queensland, where it is very abundant.

Microtheca crenellifera occurring, as just pointed out, both in Japan and Bombay, will no doubt be found in intermediate stations, but it has hitherto occurred almost singly, and is very scarce in European collections. It is five-whorled, globose, white, shining, smooth save for one spiral costulate crenulation below the sutures, which are much impressed, and for the crenate callosity round the umbilicus, which has its counterpart in *M. Acidalia*.

Of this new species two examples, quite perfect and precisely similar, occurred, which we think worthy of one of the epithets formerly bestowed on Aphrodite.

STOMATIIDÆ.

221. STOMATELLA MARIEI, Cr.

Station 13, Mèr; Station 5, Boydong Cays.

222. STOMATELLA SULCIFERA, Lam.

Station 13, Mèr.

223. GENA STRIATULA, A. Ad.

Station 2, Warrior Island; Station 8, Albany Pass.

* Tryon, Man. Conch. x. pp. 16, 106.

HALIOTIDÆ.

224. HALIOTIS VARIA, *L.*

Station 13, Mèr (Murray Island).

225. HALIOTIS (PADOLLUS) OVINA, *Chemn.*

Station 13, Mèr.

226. HALIOTIS (TEINOTIS) ASININA, *L.*

Station 5, Boydong Cays.

FISSURELLIDÆ.

227. FISSURELLA (GLYPHIS) CORBICULA, *Sow.?*

Not quite normal, as the perforation is more rotund than in either typical *F. corbicula* or *F. lanceolata*, Sow. The solitary example was so covered with extraneous growths and somewhat broken, that we cannot with absolute certainty pronounce upon it.

Station 8, Albany Pass.

228. FISSURELLA (GLYPHIS) JUKESEI, *Ree.*

Station 2, Warrior Island.

229. SCUTUS UNGUIS, *L.*

Station 10, Channel between Hammond Island and Wednesday Spit.

230. RIMULA EXQUISITA, *A. Ad.*

Station 10, Channel between Hammond Island and Wednesday Spit.

231. PHENACOLEPAS LINGUA-VIVERRÆ *, sp. n. (Pl. 10. fig. 11.)

S. testa ovata, candida, parum nitida, subpellucida, rotunde antice convexa, apice incurvo, acuminato, marginem posticum superimpendente, undique longitudinaliter arcu radiatim costulata, costulis arctissime et minute papilliferis, intus albida, margine parum incrassato. Alt. 5, lat. 11, diam. 8 mm.

Two specimens, precisely alike, of a beautiful, thickly longitudinally radiate shell, the radiations being closely studded with white papillæ; the form is ovate, apex incurved, much overhanging the posterior margin, front side elevated and convex; surface of the interior white, the margin hardly thickened.

Phenacolepas, Pilsbry 1891, must take the place of *Scutellina*, Gray 1847, non Agassiz 1841 (*Echinodermata*).

* *Lingua-viverræ*, civet-cat's tongue, from the small papillæ.

POLYPLACOPHORA.

CHITONIDÆ.

232. CHITON PICTUS, *Rve.*

We are indebted to Mr. E. R. Sykes for the following and other notes on the Polyplacophora of the collection:—"Having examined Reeve's types, I am unable to separate his species from that of Gould, originally described from Fiji. Two sets of figures in the Moll. U.S. Explor. Exped. bear the number 434: the present species is represented by the right-hand set; the others being apparently a slip for 431. The slits in the largest specimen are: head-valve 8, tail-valve 12" (*E. R. S.*). This species was also found very sparingly by Mr. Brazier during the 'Chevert' expedition, at Darnley Island. Endemic in the Torres Straits.

Station 13, Mèr.

233. ISCHNOCHITON (HAPLOPLAX) sp.

One very young specimen of a species of *Haploplax*; when alive it measured about 4 to 5 mm. "It is closely allied to *I. (Haploplax) purus*, Sykes; but the girdle-scales are large and striate. Too young to describe" (*E. R. S.*).

Station 10, Channel between Hammond Island and Wednesday Spit.

234. TONICIA FORTILIRATA, *Rve.?*

"One immature specimen, which may belong to this species; it does not show the granulose lateral areas, but this may be due to its youth" (*E. R. S.*).

The localities given for *T. fortilirata* by Mr. Edgar Smith (Voy. 'Alert,' 1881-82, p. 84) are Port Darwin, 8-10 fathoms (*Coppinger*); and Raine's Island (*Reeve*). Endemic.

Station 14, Channel between Mèr and Davar.

235. TONICIA CONFOSSA, *Gould.*

Station 13, Mèr.

236. ACANTHOPLEURA SPINIGERA, *Sow.*

Station 13, Mèr.

237. ACANTHOCHITON. Two species.

(i.) "One, immature, striate at the beaks and granulose on the lateral areas" (*E. R. S.*).

Station 13, Mèr, on reef.

(ii.) "Two young specimens of an interesting form, chiefly noteworthy for the sculpture, which consists of radiating riblets from the beaks of the valves" (*E. R. S.*).

Station 10, Channel between Hammond Island and Wednesday Spit.

238. *SCHIZOCHITON INCISUS*, *Sow.*

Station 13, Mèr.

239. *CRYPTOPLAX STRIATUS*, *Lam.*

Station 13, Mèr.

240. *CRYPTOPLAX OCULATUS*, *Q. & G.*

In many stages of growth, some being unusually fine.

Station 13, Mèr.

SCAPHOPODA.

DENTALIIDÆ.

241. *DENTALIUM PSEUDO-SEXAGONUM*, *Desh.*

Station 1, Thursday Island.

242. *DENTALIUM JAVANUM*, *Sow.*

Station 8, Albany Pass.

PELECYPODA.

OSTREIDÆ.

243. *OSTREA TUBERCULARIS*, *Lam.*

Station 8, Albany Pass.

ANOMIIDÆ.

244. *PLACUNANOMIA (MONIA) IONE*, *Gray.*

Station 13, Mèr.

245. *PLACUNA LOBATA*, *Sow.*

Station 2, 20 miles N.N.W. Warrior Island, $5\frac{3}{4}$ fathoms, Aug. 15, 1888 (*A. C. H.*).

SPONDYLIDÆ.

246. *PLICATULA AUSTRALIS*, *Lam.*

Station 13, Mèr.

247. *PLICATULA IMBRICATA*, *Mke.*

Station 5, Boydong Cays.

248. *SPONDYLUS BARBATUS*, *Rve.*

Station 13, Mèr.

249. *SPONDYLUS FOLIACEUS*, *Chemn.*250. *SPONDYLUS NICOBARICUS*, *Chemn.*251. *SPONDYLUS OCELLATUS*, *Rve.*252. *SPONDYLUS PACIFICUS*, *Rve.*

LIMIDÆ.

253. *LIMA SQUAMOSA*, *Lam.*

The Torres Straits form is indistinguishable from that occurring in the Mediterranean. We have traced it across the Isthmus of Suez to Red Sea waters, then along the coasts of India and Ceylon, eastward, uninterruptedly.

Station 13, Murray Island; Station 14, Mèr, channel between reefs; Station 2, Warrior Island.

254. *LIMA (LIMATULA) BULLATA*, *Born.*

Station 5, Boydong Cays.

255. *LIMA (LIMATULA) TORRESIANA*, *E. A. Smith.* ('Challenger' Rep. vol. xiii. p. 291, pl. xxiv. figs. 5, 5 a.) (Pl. 11. figs. 19, 19 a.)

Many examples, but for the most part only disassociated valves, of this rare endemic species. These are less convex than the type, and we therefore consider a figure necessary. Measurements as follows:—Alt. 12, lat. 10, diam. 8 mm.

Station 13, Mèr (Murray Island); Station 8, Albany Pass; Station 5, Boydong Cays.

256. *LIMA (CTENOIDES) FRAGILIS*, *Chemn.*

Station 1, Thursday Island (Sept. 1888); Station 2, Warrior Island; Station 12, Mabuiag (Oct. 1888).

257. *LIMA (CTENOIDES) TENERA*, *Chemn.*

Station 2, Warrior Island.

258. *LIMA (MANTELLUM) ARCUATA*, *Sow.*

Station 10, between Hammond Island and Wednesday Spit.

259. *LIMA (MANTELLUM) INFLATA*, *Lam.*

Station 13, Mèr.

PECTINIDÆ.

260. AMUSSIUM PLEURONECTES, *L.*

Station 5, Boydong Cays.

261. PECTEN (PSEUDAMUSSIUM) ARGENTEUS, *Rve.*

Station 2, Warrior Island.

262. PECTEN BLANDUS, *Rve.*

Station 14, Mèr, channels between reefs.

263. PECTEN CRASSICOSTATUS, *Sow.*

Station 14, Mèr.

264. PECTEN CROUCHI, *Smith.*

Station 10 ; Station 8, Albany Pass. Mauritius (*Smith*), where it has hitherto been considered endemic.

265. PECTEN LEMNISCATUS, *Rve.*

Station 8, Albany Pass.

266. PECTEN LENTIGINOSUS, *Rve.*

Station 2, Warrior Island ; Station 5, Boydong Cays.

267. PECTEN LIMATULA, *Rve.*

Station 5, Boydong Cays.

268. PECTEN MADREPORARUM, *Petit.*

Station 5, Boydong Cays.

269. PECTEN PALLIUM, *L.*

Station 5, Boydong Cays.

270. PECTEN SENATORIUS, *Gmel.*

Station 8, Albany Pass.

271. PECTEN (CHLAMYS) CUNEATUS, *Rve.*

Station 2, Warrior Island.

AVICULIDÆ.

272. AVICULA AQUATILIS, *Rve.*

Station 2, Warrior Island.

273. AVICULA ALA-CORVI, *Chemn.*

Station 14, Mèr.

274. AVICULA CROCEA, *Chemn.*

275. AVICULA MALLEOIDES, *Rve.*

Station 14, Mèr.

276. MELEAGRINA ANOMIOIDES, *Rve.*

277. MELEAGRINA MARGARITIFERA, *L.*

278. MELEAGRINA TEGULATA, *Rve.*

279. VULSELLA LINGULATA, *Lam.* (*Mya vulsella*, *L.*)
Station 8, Albany Pass.

280. CREMATULA FLAMMEA, *Rve.*
Station 2, Warrior Island.

281. PERNA ATTENUATA, *Rve.*
Station 5, Boydong Cays.

282. PERNA AUSTRALICA, *Rve.*

283. PERNA LENTIGINOSA, *Rve.*
Station 10, between Hammond Island and Wednesday Spit.

284. PINNA FUMATA, *Hanley.*
Station 14, Channel below Mèr.

285. PINNA (ATRINA) NIGRA, *Chemn.*

MYTILIDÆ.

286. MYTILUS HORRIDUS, *Dkr.*

287. MYTILUS (AULACOMYA) HIRSUTUS, *Lam.*

288. SEPTIFER NICOBARICUS, *Chemn.*
Station 13, Murray Island; Station 5, Boydong Cays.

289. MODIOLA ARBORESCENS, *Chemn.*
Station 5, Boydong Cays.

290. MODIOLA AUSTRALIS, *Gray.*
Station 10, Hammond Island and Wednesday Spit.

291. MODIOLA CINNAMOMEA, *Chemn.*

292. MODIOLA (ADULA) LANIGERA, *Dkr.*
Station 2, Warrior Island.

293. MODIOLA LIGNEA, *Rve.*

294. MODIOLA PHILIPPINARUM, *Hanley.*
Station 5, Boydong Cays.

295. MODIOLARIA CUMINGIANA, *Dkr.*
Station 2, Warrior Island; Station 5, Boydong Cays.

296. LITHOPHAGUS CANALIFERUS, *Hanley.*
Station 5, Boydong Cays; Station 11, Mabuiag.

297. LITHOPHAGUS GRACILIS, *Phil.*

Station 2, Warrior Island.

298. LITHOPHAGUS HANLEYANUS, *Dkr.*299. LITHOPHAGUS TERES, *Phil.*

Station 2, Warrior Island ; Station 13, Mèr.

ARCIDÆ.

300. ARCA NAVICULARIS, *Brug.*

Station 2, Warrior Island ; Station 5, Boydong Cays.

301. ARCA ZEBRA, *Swains.*

Station 5, Boydong Cays.

302. ARCA ZEBUENSIS, *Rve.*

Station 5, Boydong Cays.

303. BARBATIA DECUSSATA, *Sow.*

Station 14, Mer ; Station 8, Albany Pass, 10 fathoms.

304. BARBATIA VOLUCRIS, *Rve.*

Station 2, Warrior Island ; Station 11, Mabuiag.

305. BARBATIA FUSCA, *Brug.*

Station 13, Murray Island ; Station 5, Boydong Cays.

306. BARBATIA IMBRICATA, *Brug.*

Station 2, Warrior Island ; Station 8, Albany Pass ; Station 5, Boydong Cays.

307. BARBATIA LIMA, *Rve.*

Station 10, Hammond Island ; Station 5, Boydong Cays.

308. BARBATIA TENELLA, *Rve.*

Station 5, Boydong Cays.

309. BARBATIA TRAPEZINA, *Lam.*

Station 5, Boydong Cays.

310. BARBATIA (VENUSTA) LACTEA, *L.*

This species ranges throughout the whole of the Eastern hemisphere, being a common British shell, and its headquarters may be considered the Mediterranean. It is one of the few European marine Mollusca that occur the other side of the Isthmus of Suez.

Station 8, Albany Pass.

311. *BARBATIA* (ACAR) *ACERÆA* *, sp. n. (Pl. 10. fig. 15.)

B. testa delicata, candida, pulchre cancellata, subquadratum oblonga, convexiuscula, umbonibus incurvis, prominulis, nequam approximatis, margine dorsali utrinque recto, antice truncato, deinde breviter marginem apud ventralem rotundato, latere postico oblique producto, subcarinato, superficie alba, delicatissime liratum costulata, liris ad latera crassioribus, sub lente nodosis; pagina intus alba, concava, cardine dentibus plurimis parum rectis prædito, ligamento externo, sinu palliali inconspicuo. Alt. 7, lat. 15, diam. 6 mm. (spec. maj.).

Four examples, all quite perfect, of an exceedingly highly sculptured little *Acar*, white, elegantly chased, and furnished with many close longitudinal radiating liræ; these, when viewed with the aid of a lens, are nodose, and are thicker, both posteriorly and anteriorly, than in the centre of the shell-surface. In form it is quadrately oblong, very convex, the umbones not approximate, but incurved and conspicuous; dorsal margin straight, produced on both sides of the umbones, anteriorly truncate, and finally merging in the rounding off of the ventral margin, this being exactly parallel to the dorsal edge. Posteriorly, the shell is obliquely produced, subcarinate. Within, the surface is white, very concave; pallial sinus only obscure; hinge with very many oblique teeth in either valve, regularly arranged.

312. *BARBATIA* (ACAR) *DIVARICATA*, *Sow.*

Station 5, Boydong Cays.

313. *BARBATIA* (ACAR) *DOMINGENSIS*, *Lamarck.*

A West Indian species that seems to be making more headway, so far as distribution is concerned, in the Eastern tropics than almost any other Pelecypod. It has also recently come across our notice from the Arabian Sea and North-Indian Ocean (*Townsend*).

Station 5, Boydong Cays.

314. *BARBATIA* (ACAR) *SCULPTILIS*, *Rve.*315. *ANADARA ANTIQUATA*, *L.*

Station 13, Mèr (Murray Island).

316. *ANADARA CLATHRATA*, *Rve.*

Station 5, Boydong Cays.

317. *PARALLELIPIPEDUM SEMITORTUM*, *Lam.*

Station 5, Boydong Cays.

* ἀκέρατος, pure.

318. *PECTUNCULUS HOYLEI*, sp. n. (Pl. 11. fig. 24.)

P. testa orbiculari, æquilaterali æquivalvi, solidiuscula, umbonibus prominulis, approximatis, dorsaliter recta, ad latera utrinque bis rufomaculata, radiatim fortiter costata, costis ad octo et viginti, uniformibus, pulchre nodoso-squamatis, nodulis interdum superficiem apud mediam evanidis, interstitiis transversim squamato-liratis; cardine dentibus ad viginti in valva utraque instructo, albis, simplicibus; pagina intus albescente, ad latera interdum roseo-tincta. Alt. 24, lat. 25, diam. 15 mm. (spec. max.).

Station 2, Warrior Island; Station 5, Boydong Cays.

Superficially this interesting new form approaches *P. nodosus*, Reeve, a rare Ceylonese species, in which the ribs are of the same character, but bolder, wider in proportion, and consequently much fewer numerically, being only eighteen as against twenty-eight in *P. Hoylei*. The coloration also is more varied in the Ceylonese shell. Our species is almost colourless, being whitish, tinged here and there with faint red streaks, and conspicuously twice-blotched with red maculations both posteriorly and anteriorly. The surface is thickly ribbed, the ribs being beautifully scaly-nodulous, the interstices between them being also squamosolirate. The teeth of the hinge in either valve are some twenty in number, simple. Interior whitish, tinged in most specimens laterally with faint rose-colour.

We dedicate this *Pectunculus* to Mr. William Evans Hoyle, Director of the Manchester Museum, as a small recognition of many kindnesses experienced at his hands.

319. *PECTUNCULUS VITREUS*, Lam.

This, the flattest and most placunoid of all *Pectunculi*, was, at the time of its discovery, one of the rarest of Mollusca, and for many years was only known by one valve, brought home by the voyageur M. Péron, and deposited in the Musée Royale, Paris. Prof. Haddon dredged about a dozen specimens, one of them being alive and perfect, though young. This shows orange-brown flecking and pure white interior. It has occurred at Mauritius and one or two other places in the Eastern tropics, and this is an interesting extension of its range.

Station 5, Boydong Cays; Station 10, between Hammond Island and Wednesday Spit.

320. LIMOPSIS CANCELLATA, *Rve.*

Station 5, Boydong Cays; Station 10, between Hammond Island and Wednesday Spit.

321. LIMOPSIS WOODWARDI, *A. Ad.*

This may possibly be only a variety of *L. cancellata*, *Rve.*

Station 5, Boydong Cays; Station 10, between Hammond Island and Wednesday Spit.

322. CUCULLÆA CONCAMERATA, *Chemn.*

Station 10, Hammond Island.

NUCULIDÆ.

323. NUCULA OBLIQUA, *Lam.*324. NUCULA SIMPLEX, *A. Ad.*325. LEDA DARWINI, *Smith.*

Station 5, Boydong Cays.

TRIGONIIDÆ.

326. TRIGONIA UNIOPHORA, *Gray.*

Station 14, Mèr.

CARDITIDÆ.

327. CARDITA CARDIOIDES, *Rve.*

Station 5, Boydong Cays.

328. CARDITA MARMOREA, *Rve.*

Station 14, Mèr.

329. MYTILICARDIA CRASSICOSTATA, *Lam.*

Station 2, Warrior Island; Station 8, Albany Pass; Station 14, Mèr.

330. MYTILICARDIA MURICATA, *Sow.*

Station 14, Mèr.

331. MYTILICARDIA VARIEGATA, *Brug.*

Station 14, Mèr.

CRASSATELLIDÆ.

332. CRASSATELLA ZICZAC, *Rve.*

Station 8, Albany Pass.

ERYCINIDÆ.

333. *KELLIA PHYSEMA**, sp. n. (Pl. 10. fig. 14.)

K. testa pellucida, vitrea, globulari, bullacea, convexa, nitida, æquivalvi, umbonibus haud conspicuis, contiguïs, sub lente delicatissime irregulariter concentrice lirata, margine dorsali rapide declivi, postice, simul ac antice, leniter rotundata; intus pellucida, ad margines lactea, ligamento interno, cardine dentibus duobus in utraque valva prædito. Alt. 8, lat. 7·50, diam. 4 mm.

A most fragile and delicate globular pellucid *Kellia*, round the margins somewhat milky, otherwise vitreous, equivalve, with inconspicuous umbones, smooth, very microscopically concentrically lirata, the margins rounded, orbicular; ligament internal; inner surface of shell almost pellucid; the hinge provided with two teeth, one central one lateral, in each valve.

334. *TELLIMYA EPHIPPIOLUM*†, sp. n. (Pl. 10. figs. 13, 13 a.)

T. testa tenui, albescente; valvis cymbæformibus, profunde convexis, umbonibus parvis, antice obliquis, contiguïs, superficie in medio depressa, utrinque lobata, præcipue marginem apud ventralem, antice subproducta, rotundata, postice curta; intus alba, subpellucida, sub lente circa margines minutissime longitudinaliter striata. Alt. 4, lat. 5, diam. 5·50 mm.

Station 5, Boydong Cays.

The ventrally depressed surface of the valves of this little species are very peculiar, and they are also extremely convex, the umbones contiguous, inclining anteriorly; within, the margins are microscopically longitudinally striate. The nearest ally would seem to be *T. triangularis*, Gould.

GALEOMMIIDÆ.

335. *SCINTILLA ALBERTI*, *Smith*.

Station 2, Warrior Island.

336. *SCINTILLA HYALINA*, *Desh*.

Station 8, Albany Pass.

TRIDACNIDÆ.

337. *TRIDACNA ELONGATA*, *Lam*.

Station 13, Murray Island.

* *φύσσημα*, a bubble.

† *Ephippiolum*, dim. of *ephippium*, a saddle.

338. *TRIDACNA SERRIFERA*, *Lam.*

Station 14, Mèr.

339. *TRIDACNA SQUAMOSA*, *Lam.*

Station 14, Mèr.

CARDIIDÆ.

340. *CARDIUM TENUICOSTATUM*, *Lam.*

Station 5, Boydong Cays.

341. *CARDIUM* (*TRACHYCARDIUM*) *DIANTHINUM**, sp. n. (Pl. 11. figs. 25, 25 a.)

C. testa oblique rotunda, tenui, pallide straminea, sæpe ad medium carneo vel puniceo-suffusa, sæpe unicolore, vel straminea vel undique punicea, longitudinaliter costata, costis quinque et triginta, planatis, postice serrulatis, et antice minute squamatis, umbonibus contiguis, parvis, ligamento externo; intus variante, interdum straminea, interdum carnea, marginibus postice dentatis, superficie interna delicate longitudinaliter lirata. Alt. 14, lat. 12, diam. 8 mm. (spec. maj.).

Station 10, Channel between Hammond Island and Wednesday Spit.

A variably coloured, delicate, and bright little shell, its chief peculiarities being the obliquely rounded outline (in one variety somewhat squarely set towards the ventral margin), and the smooth ribs, fine and close, some 35 in number, only serrulate posteriorly and in front minutely scaly. Within, the surface varies as do the outer valves in coloration, the delicate ribs showing through, so thin is the substance of the shell.

Several specimens.

342. *CARDIUM* (*TRACHYCARDIUM*) *ELONGATUM*, *Brug.*

One magnificent example, of narrower contour than the type figured by Reeve, and which does not possess so many ribs, these being only 38 in number, as against 43 or 44 in normal specimens. The colour too is less vivid, and shows no trace of rufous, being of a pale cinereous-ochre.

Station 14, Mèr.

343. *CARDIUM* (*TRACHYCARDIUM*) *LACUNOSUM*, *Rve.*

A variety only, the ribs being but 30 in number, the super-

* *Dianthinus*, resembling a carnation.

ficies highly coloured, and somewhat stunted and incrassate. Reddish ochraceous without, pure milky-white within; marginal teeth acute and red-tipped.

Station 8, Albany Pass.

344. *CARDIUM* (*TRACHYCARDIUM*) *MACULOSUM*, *Wood*.

Station 2, Warrior Island.

345. *CARDIUM* (*TRACHYCARDIUM*) *RUBICUNDUM*, *Rve*.

Station 5, Boydong Cays.

346. *CARDIUM* (*TRACHYCARDIUM*) *RUGOSUM*, *Lam*.

Station 5, Boydong Cays.

346 *a*. *CARDIUM* (*TRACHYCARDIUM*) *SERRICOSTATUM*, sp. n.
(Pl. 11. fig. 20.)

C. testa ovata, crassiuscula, cinereo-alba, fere æquilaterali, umbonibus incurvis, contiguis; valvis longitudinaliter costatis, costis ad quadraginta, prominulis, delicate serrulatis, antice et postice squamulosis, interstitiis excavatis, margine dorsali utrinque leniter declivi, regulari, lateribus posticis, simul ac anticis marginem ad ventralem rotundatis; intus cinereo-alba, circa margines striato-dentata; dentibus cardinalibus fortibus, lateralibus prominulis. Alt. 20, lat. 18, diam. 12 mm.

Station 4, Ormans Reef; Station 13, Murray Island.

Several valves of a distinct species we have been quite unable to match. The peculiarly serrated, squarely-set ribs, some forty in number, are characteristic. The interstices are deeply excavate, the umbones not very prominent, contiguous. Shell almost equilateral, the dorsal margin on each side of the umbones gently rounded off, both posteriorly and anteriorly, towards the ventral margin. Within, the shell is ashy-white, towards the margins striato-dentate, hinge teeth strong, laterals prominent.

Three or four examples.

347. *CARDIUM* (*TRACHYCARDIUM*) *TRANSCENDENS*, sp. n.
(Pl. 11. fig. 21.)

C. testa ovata, delicata, arctissime et pulcherrime longitudinaliter tenuicostata, costis circa octo et quinquaginta, umbonibus lævibus, nitidis, contiguis, paullulum antice inversis; valvis convexis, margine dorsali utrinque rapide declivi, postice et antice leniter marginem apud ventralem rotundatis, superficie pallide

straminea, ad latera puniceo-maculata, et undique carneo- et puniceo-suffusa, ad margines flavescente, ligamento externo; intus superficie pallide carnea, ad medium ochraceo-punicea, nitida, delicatissime striata, apud margines serrata. Alt. 25, lat. 21, diam. 15 mm.

A remarkably elegant *Trachycardium*, its nearest ally being *C. maculosum*, Wood, which it resembles in coloration, and to some extent in form, it being, however, more equally oval, and possessing about 58 as against 38 ribs. *C. obovale*, Sow., and *C. mauritianum*, Desh., likewise *C. arenicolum*, Reeve, are akin, but each possesses salient and marked individual characteristics of its own. The species now before us differs from all others of its section in its exceedingly fine longitudinal costulations and very delicate pink and pale yellow colour. It is roundly oval, thin, with the umbones red, shining, closely approximate; valves extremely convex, dorsally speedily sloping both ways, and then gently rounding off into the ventral margin. Within, the surface is delicately longitudinally striate, pale flesh-colour, yellowish red in the centre, shining, the margin of the valves serrated.

348. CARDIUM (TRACHYCARDIUM) VARIEGATUM, Sow.

349. CARDIUM (PAPYRIDEA) PAPYRACEUM, Chemn.

350. CARDIUM (LÆVICARDIUM) BECHEI, Ad. & Ree.

One young valve only. A species of extreme rarity, and almost unknown in collections. Two magnificent specimens, formerly in the Colonial Exhibition of 1884, are now in the British Museum (Nat. Hist.).

Station 2, Warrior Island.

351. CARDIUM (LÆVICARDIUM) BIRADIATUM, Brug.

Station 13, Mèr; Station 8, Albany Pass.

352. CARDIUM (LÆVICARDIUM) LYRATUM, Sow.

353. HEMICARDIUM SUBRETUSUM, Sow.

Station 10, Hammond Island.

354. HEMICARDIUM (FRAGUM) UNEDO, L.

Station 13, Mèr; Station 5, Boydong Cays.

355. *HEMICARDIUM* (*CTENOCARDIUM*) *FORNICATUM*, *Sow.*

For many years unique, this exquisite shell has been lately found, though always rarely, in the Arabian Sea (*F. W. Townsend*), as well as now in the Torres Straits.

356. *HEMICARDIUM* (*CTENOCARDIUM*) *FRAGUM*, *L.*

Station 13, Murray Island; Station 5, Boydong Cays.

357. *HEMICARDIUM* (*CTENOCARDIUM*) *IMBRICATUM*, *Sow.*

Station 13, Murray Island.

CHAMIDÆ.

358. *CHAMA DIVARICATA*, *Rve.*

Station 10, between Hammond Island and Wednesday Spit.

359. *CHAMA FIBULA*, *Rve.*360. *CHAMA FIMBRIATA*, *Rve.*

Station 5, Boydong Cays.

361. *CHAMA PELLIS-PHOCÆ*, *Rve.*

Station 14, Mèr.

362. *CHAMA PULCHELLA*, *Rve.*

Station 14, Mèr.

363. *CHAMA REFLEXA*, *Rve.*

Station 5, Boydong Cays.

364. *CHAMA* (*ARCINELLA*) *SPINOSA*, *Brod.*

Station 5, Boydong Cays.

CYPRINIDÆ.

365. *LIBITINA ANGULATA*, *Lam.*

Station 8, Albany Pass.

VENERIDÆ.

366. *DIONE INFLATA*, *Sow.*

Station 5, Boydong Cays.

367. *LIOCONCHA HEBRÆA*, *Lam.*

The smaller *Lioconchæ* are somewhat difficult to differentiate. Though they may not be considered particularly variable, yet so

many so-called "species" were described in the earlier years of this century by Lamarck, Deshayes, and others, that much confusion naturally exists, and we should not be surprised if some future monographer were not only to merge this with *L. tigrina*, Lam., and *L. Sowerbyi*, Desh., but also make more sweeping reforms still.

Station 5, Boydong Cays.

368. *LIOCONCHA PICTA*, Lam.

Station 14, Mèr.

369. *PITAR REGULARIS*, Smith (as *Caryatis*). ('Challenger' Rep. vol. xiv. pl. i. figs. 3-3 b.)

Pitar, Römer, has priority of five years over *Caryatis* of the same author.

370. *CIRCE CASTRENSIS*, L.

Station 2, Warrior Island; Station 5, Boydong Cays; Station 4, Ormans Reef.

371. *CIRCE PECTINATA*, L.

We believe that it will be found that the *Circe* (or *Crista*) *pectinata*, L., and *C. gibbia*, Lam., are the extreme forms of one variable species. *Gibbia*, as its name would imply, is the large swollen-valved shell, coarsely longitudinally nodulous-costate; whilst normal forms of *pectinata* are flatter, simply oblong, and the nodules, though present, hardly developed. *Gibbia*, again, is as a rule colourless, with the exception of a dark bluish-brown variegation posteriorly; while *pectinata* is, in all examples we have seen, more or less flecked throughout with zigzag brown markings. The distribution of both species is much the same, and embraces the whole of the tropical East Indies.

Station 14, Mèr; Station 5, Boydong Cays.

372. *CIRCE RIVULARIS*, Born.

Station 5, Boydong Cays.

373. *DOSINIA CÆRULEA*, Rve.

374. *DOSINIA HISTRIO*, Gmel.

It is common and variable in the Arabian Sea and Persian Gulf (*Townsend*); Andamans (*Booley*); Madras and S. Indian Ocean (*Henderson*); Ceylon (*Layard*), &c. A variety from Murray Island is the *D. lyrata*, Sow.

Station 2, Warrior Island; Station 13, Murray Island; Station 5, Boydong Cays; Station 4, Ormans Reef; Station 10, Hammond Island.

375. CHIONE (OMPHALOCLATHRUM) CHEMNITZII, *Hanley*.
Station 8, Albany Pass.

376. CHIONE (OMPHALOCLATHRUM) COSTELLIFERA, *Ad*.
Station 13, Murray Island.

377. CHIONE (OMPHALOCLATHRUM) EMBRITHES*, sp. n. (Pl. 11. figs. 23, 23 a.)

C. testa percrassa, multum convexa, ovato-rotunda, æquivalvi, inæquilaterali, umbonibus inversis, approximatis, superficie concentrice costulata, costis tornatis, interstitiis arcuissime sculptis, deinde calcareo-tessellatis, longitudinaliter quadriradiata, interdum sparsim brunneo-maculata, interdum unicolore, lunula perexcavata, latere antico multum compresso, deinde marginem apud ventralem rotundato, postico abbreviato; pagina intus alba, nitida, circiter impressionem muscularem posticam pulchre rubescente, linea palliali conspicua, sinuosa; cardine incrassato, dentibus cardinalibus simul ac laterali postico conspicuis, antico perminimo, marginibus intus serrulatis. Alt. 28, lat. 30, diam. 22 mm. (spec. maj.).

Station 8, Albany Pass; Station 4, Ormans Reef.

Hitherto mixed up and confounded with *C. toreuma*, Gould, also inhabiting the same seas, this species can be with ease differentiated by the extremely excavate lunule and less frequent concentric laminae. Besides these distinctions, the interstitial spaces between the laminae are more delicately tornate, and assume a lateritral pattern, resembling layers of minute bricks, laid regularly, some being of chalky-white consistency. The substance of the shell, below the umbones especially, is peculiarly massive. Each valve is ornamented with three or four conspicuous longitudinal rays. Within, the surface is white, shining, beautifully stained with red round the posterior muscular impression, the pallial line being conspicuous and sinuous; the hinge is thickened; the cardinal teeth and the posterior lateral large, the anterior exceedingly small; the margins of the valves being serrate within.

* ἐμβριθής, heavy.

378. CHIONE (OMPHALOCATHRUM) LAMARCKII, *Gray*.
Station 2, Warrior Island.

379. CHIONE (OMPHALOCATHRUM) MARICA, *L*.
Station 5, Boydong Cays; Station 13, Murray Island.

380. CHIONE (OMPHALOCATHRUM) LISTERI, *Gray*.
Station 13, Murray Island.

381. CHIONE (OMPHALOCATHRUM) SUBNODULOSA, *Hanley*.
Station 10, Hammond Island.

382. CHIONE (OMPHALOCATHRUM) TOREUMA, *Gould*.
Station 2, Warrior Island.

383. ANAITIS CALOPHYLLA, *Hanley*.
Station 5, Boydong Cays.

384. ANAITIS THIARA, *Dillwyn*.
Station 4, Ormans Reef; Station 10, Hammond Island.

385. PAPHIA GLABRATA, *Desh*.
Our specimens are more rostrate than the type.
Station 10, Hammond Island.

386. PAPHIA MITIS, *Desh*.

387. TAPES DESHAYESII, *Hanley*.

388. TAPES MALABARICA, *Sow*.
Station 4, Ormans Reef.

389. TAPES (PAREMBOLA) LITTERATA, *L*.
Station 2, Warrior Island.

390. TAPES (PAREMBOLA) RADIATA, *Chemn*.

391. TAPES (TEXTRIX) SULCOSA, *Phil*.
Station 2, Warrior Island; Station 4, Mèr.

392. TAPES (TEXTRIX) TEXTRIX, *Chemn*.

393. KATELYSIA SCALARINA, *Lam*.
Station 8, Albany Pass.

UNGULINIDÆ.

394. *DIPLODONTA ETHIMA* *, sp. n. (Pl. 11. figs. 17, 17 a.)

D. testa oblique globulari, tenui, profunde convexa, umbonibus contiguus, incurvis, margine dorsali antice rapide declivi, rotundato, postice primum fere recto, deinde abrupte marginem circa ventralem rotundato, superficie extus alba, parum nitente, concentricæ rudi-lirata; pagina intus alba, cardine duobus dentibus parvis in valva utraque prædita, linea palliali simplici, inconspicua. Alt. 11, lat. 11, diam. 8 mm.

A thin, globular, somewhat oblique *Diplodonta*; the umbones, owing to the great convexity of form, rather conspicuous and incurved anteriorly. Though this shell possesses no very marked characteristics, we have been unable to match it with any of the numerous described species.

395. *DIPLODONTA SUBCRASSA*, *Smith*. (Rep. Zool. Coll. Voy. H.M.S. 'Alert,' 1881-82, p. 104, pl. 7. figs. L, LI.)

We have been confirmed in our naming by the author, with whom we compared our examples with the type, which came from West Island, Prince of Wales Channel (Station 9).

396. *DIPLODONTA SUBGLOBOSA*, *Smith*. ('Challenger' Rep., Lamellibranchs, p. 197, pl. 14. figs. 10, 10 a.)

Two valves, on which Mr. E. A. Smith has also kindly pronounced an opinion, remarking that these are more adult than the types, and have a slight difference in shape.

PSAMMOBIIDÆ.

397. *PSAMMOBIA RASILIS* †, sp. n. (Pl. 11. fig. 18.)

P. testa oblonga, tenui, fere lævi, umbonibus inconspicuis, roseo-suffusis, superficie carnea, longitudinaliter septem-radiata, concentricæ rudi-striata, margine dorsali antice recta, prolongata, ad juncturam marginis ventralis uniangulata, postice abbreviata, longitudinaliter corrugata, ligamento externo; intus pallide punicea, subpellucente, cardine in altera valva dente bifido, in altera indiviso, prædita, linea palliali sinuata. Alt. 16, lat. 27, diam. 3.50 mm. (spec. maj.).

An elegantly rayed oblong species, almost smooth, tinted with rose at the inconspicuous umbones, flesh-coloured as to its

* *εθιμος*, usual, commonplace.

† *Rasilis*, smoothish.

surface, and longitudinally seven-rayed; its dorsal margin is prolonged, and almost straight till its sudden angle on merging into the ventral margin, anteriorly, while the hinder margin is abbreviated, the surface being longitudinally wrinkled; the ligament is external; within, the surface is pale pink; the hinge has in one valve a bifid, in the other an undivided single tooth; the pallial line is sinuate.

398. *PSAMMOBIA* (GARI) *ANOMALA*, *Desh.*

Our specimens do not show the usual radiations of this delicate shell.

Station 5, Boydong Cays.

399. *PSAMMOBIA* (GARI) *MARMOREA*, *Desh.*

Station 13, Mèr.

400. *PSAMMOBIA* (GARI) *ORNATA*, *Desh.*

A yellow, prettily rayed variety.

Station 13, Mèr.

401. *PSAMMOBIA* (GARI) *PRÆSTANS*, *Desh.*

402. *PSAMMOBIA* (GARI) *PULCHERRIMA*, *Desh.*

403. *SOLETELLINA* *VIRESCENS*, *Desh.*

A curious shining pale ochraceous variety, with two longitudinal broad orange flames, one on each side of the umbones, very evanescent towards the ventral margin. It is a rare form, and seldom met with.

Station 13, Murray Island.

404. *ASAPHIS* *DEFLORATA*, *L.*

It is possible that all the *Asaphis* of the Western hemisphere, e. g. *A. dichotoma*, Anton, *A. coccinea*, Mart., &c., are but varieties of one variable form, equally abundant in the East.

Station 2, Warrior Island; Station 5, Boydong Cays.

SOLENIDÆ.

405. *SOLENOCURTUS* (AZAR) *COARCTATUS*, *Gmel.*

Station 13, Murray Island.

MESODESMATIDÆ.

406. *MESODESMA* *PRÆCISA*, *Desh.*

Station 8, Albany Pass.

MACTRIDÆ.

407. *MACTRA APICINA*, *Desh.*

Station 13, Murray Island.

408. *MACTRA ACHATINA*, *Chemn.*

409. *MACTRA* (*HEMIMACTRA*) *ASPERSA*, *Sow.*

410. *MACTRA* (*OXYPERAS*) *COPPINGERI*, *Smith.*

This very interesting form occurred but sparingly, and much encrusted with nullipores.

Station 4, Ormans Reef.

411. *RAETA GRAYI*, *H. Adams.*

Hab. Borneo.

412. *LUTRARIA ARCUATA*, *Desh.*

413. *LUTRARIA RHYNCHÆNA*, *Jonas.*

MYIDÆ.

414. *CORBULA CRASSA*, *Hinds.*

Station 10, Hammond Island ; Station 5, Boydong Cays.

415. *CORBULA MACGILLIVRAYI*, *Smith.*

416. *CORBULA TAHEITENSIS*, *Lam.*

417. *CORBULA TRUNCATA*, *Hinds.*

GASTROCHÆNIDÆ.

418. *GASTROCHÆNA CUNEIFORMIS*, *Lam.*

419. *GASTROCHÆNA PLICATILIS*, *Desh.*

TEREDINIDÆ.

420. *TEREDO NUCIVORA*, *Speng.*

Station 14, Mèr.

DIBRANCHIA.

LUCINACEA.

LUCINIDÆ.

421. *LUCINA* (*DIVARICELLA*) *MACANDREÆ*, *H. Ad.*

We have seen this only previously from the Red Sea (*Capt. Shopland*). Slightly coarser in sculpture than *L. ornata*, *Rve.*,

but very similar. Indeed all the *Divaricellæ* need a more critical differentiation.

Station 5, Boydong Cays.

422. *LUCINA* (*DIVARICELLA*) *ORNATA*, *Rve.*

423. *LUCINA* (*CODAKIA*) *EXASPERATA*, *Rve.*

Station 5, Boydong Cays.

424. *LUCINA* (*CODAKIA*) *FIBULA*, *Rve.*

Station 5, Boydong Cays.

425. *LUCINA* (*CODAKIA*) *INTERRUPTA*, *Lam.*

Station 13, Murray Island.

426. *LORIPES* *ICTERICA*, *Rve.*

Station 2, Warrior Island.

427. *LORIPES* *HADDONI*, sp. n. (Pl. 10. fig. 12.)

L. testa alba, orbiculari, æquivalvi, fere æquilaterali, tenui, umbonibus rostratis, haud prominulis, contiguis, inflexis, lunula excavata, angusta, superficie concentrice striata, ligamento interno; cardine valvæ sinistræ dentibus primariis duobus, dextræ uno dente majore centrali prædito; intus marginem circa ventralem longitudinaliter striata, linea palliali conspicua, haud multum sinuosa. Alt. 13, lat. 13, diam. 6 mm.

Station 2, Warrior Island.

A typical *Loripes*, white, rather thin, orbicular, finely concentrically striate, the umbones not very prominent, rostrate, inflexed; lunule narrow, excavate; the hinge of the left valve with two small primary teeth, of the right with one large tooth. Within, the surface is white, rudely longitudinally striate; pallial line conspicuous, broadly sinuous.

Two perfect examples and one valve.

428. *CORBIS* *ELEGANS*, *Desh.*

Station 13, Mèr.

TELLINIDÆ.

429. *TELLINA* (*TELLINELLA*) *ASPERRIMA*, *Hanley.*

430. *TELLINA* (*TELLINELLA*) *IRIDESCENS*, *Bens.*

Station 2, Warrior Island.

431. *TELLINA* (*TELLINELLA*) *STAURELLA*, *Lam.*

432. *TELLINA* (*TELLINELLA*) *VIRGATA*, *L.*

Station 5, Boydong Cays.

433. *TELLINA* (*TELLINELLA*) *VULSELLA*, *Chemn.*
Station 5, Boydong Cays.

434. *TELLINA* (*DONACILLA*) *RHOMBOIDES*, *Gmel.*
Station 5, Boydong Cays.

435. *TELLINA* (*DONACILLA*) *SEMITORTA*, *Sow.*

436. *TELLINA* (*DONACILLA*) *VIRGULATA*, *Hanley.*

437. *TELLINA* (*TELLINIDES*) *EMARGINATA*, *Sow.*

438. *TELLINA* (*ANGULUS*) *PHILIPPINARUM*, *Hanley.*

439. *TELLINA* (*ANGULUS*) *PROCERTA* *, sp. n. (Pl. 10. fig. 16.)

T. testa nitida, lata, ovata, tenui, pallide straminea, delicate radiis puniceis decorata, planata, umbonibus inconspicuis, planissimis, antice vix declivi, deinde abrupte rotundata, latere postico breviter rotundato, margine ventrali leniter utrinque declivi; intus pellucente, puniceo-suffusa, radiis conspicuis, cardine parvo, normali. Alt. 18, lat. 21, diam. 3.50 mm.

A shining, very flattened, broadly ovate *Tellina*, pellucid, with pale straw ground-colour, radiately ornamented with pale pink; the umbones are very flattened and inconspicuous; anteriorly the sides hardly slope until they suddenly merge into the rounded ventral margin, the posterior side is roundly contracted. Within, the radiation shows through, the hinge is small and normal, pallial sinus very obscurely seen.

440. *TELLINA* (*ANGULUS*) *VERNALIS*, *Hanley.*
Station 5, Boydong Cays.

441. *TELLINA* (*ARCOPAGIA*) *PINGUIS*, *Hanley.*
Station 5, Boydong Cays.

442. *TELLINA* (*ARCOPAGIA*) *SAVIGNYI*, *A. Ad.*
Station 5, Boydong Cays.

443. *TELLINA* (*ARCOPAGIA*) *TESSELLATA*, *Desh.*

SCROBICULARIIDÆ.

444. *SEMELE* *DUPLICATA*, *Sow.*

445. *SEMELE* *JUKESI*, *A. Ad.*

Station 10, Channel between Hammond Island and Wednesday Spit, Sept. 15, 1888.

446. *SEMELE* *LAMELLOSA*, *Sow.*

* πρόκριτος, select, choice.

CUSPIDARIIDÆ.

447. *CUSPIDARIA LATISULCATA*, *Ten.-Woods*.

Station 13, Mèr; Station 5, Boydong Cays.

PANDORIDÆ.

448. *PANDORA* sp.

It is unfortunate that the only specimen in the collection is in such unsatisfactory condition as to preclude a more detailed description, for we are convinced it is new. Valve acinaciform, trapezoid, inæquilateral, arcuate and produced posteriorly, ultimately suddenly truncated and merged into the rounded ventral margin; anterior margin much abbreviated; umbones pointed, not conspicuous; surface radiately unequally wavy-costulate, which show through on the interior surface.

Station 13, Mèr (Murray Island).

PHOLADOMYIDÆ.

PHOLADOMYA, *Sowerby*, 1823.§ *PARILIMYA*, subgenus novum.

Valvæ fere æquilaterales, antice solum paullum hiulcæ, costæ longitudinales valde obscuræ, umbones parvi.

449. *P. (PARILIMYA) HADDONI*, sp. nov. (Pl. 11. figs. 22, 22 a, 22 b.)

P. testa cinereo-albida, delicatula, tenui, æquivalvi, fere æquilaterali, oblonga, postice clausa, antice paullum hiantè; umbonibus parvis, antice incurvis, approximatis, latere antico declivi, breviter truncatulo, marginem versus ventralem subrotundato, postice paullum magis producto, denique leniter rotundato, superficie fere lævi, concentrice inæquiliter rudi-striatula, radiatim costulis arctis, pellucidis, quasi-internis pulchre ornata; ligamento externo; pagina intus cardine utriusque valvæ fere simplici, dente marginali obscuro, parvo, nitido, quasi detrito, fossa triangulari valvam apud dextram; linea palliali fere obsoleta.

Alt. 17, lat. 22, diam. 9 mm. (spec. maj.).

Alt. 9, lat. 13, diam. 6 mm. (spec. min.).

"Station 2, Warrior Island, at $5\frac{1}{2}$ fathoms, amongst broken shells and sand. August 15, 1888."—*A. C. H.*

Shell thin, equivalve, and almost equilateral, very delicate,

smoothish, oblong, and slightly gaping anteriorly, the posterior portion of the valves closed in repose. The umbones are hardly prominent, and incline forwards, being closely approximate; the anterior margin is at first sloping, then somewhat truncately rounded off, and merging into the ventral margin, while posteriorly it is slightly produced and gently rounded. The surface of both valves is alike, smoothish, milky- or ashy-white, semipellucid, indistinctly but rudely concentrically striate, and closely beset with radiating quasi-internal riblets, hardly standing out beyond the superficies; indeed in young examples these radiations appear as pellucid lines imbedded in the internal layers of the shell. The ligament is external. Within, the hinge of either valve is almost destitute of teeth or any processes whatsoever, save that a small, worn-looking, centrally situated lamellar tooth is present, most conspicuous in the left valve, though there is a corresponding tooth and an elongately triangular pit in the right valve also.

A few remarks on this peculiarly interesting genus may not be out of place here.

Pholadomya, instituted by the elder Sowerby in 1823, is one in which but very few recent species are embraced, since certain forms described by Agassiz as nearly akin to the type (for example, *P. caspica*) have been, and rightly, relegated to the toothless section of the Cardiidae, e. g. *Adacna*, Eichwald.

P. candida, Sow., the original type, is still of extremely infrequent occurrence, nearly all the specimens hitherto obtained having been cast ashore from considerable depths after storms and hurricanes off the island of Tortola, in the Antilles. The anatomy has been worked out by Sir Richard Owen, who describes the mantle-margins as being united, save where space is left for the foot and outlets occur for the siphonal and anal orifices; the gills on either side single, the outer lamina produced dorsally, and there is also an accessory, bifurcate foot. A fine example of the shell in the private collection of one of us exhibits a large, papyraceous, fragile, white, extremely inaequilateral surface, equivalve, very convex centrally and towards the umbones, widely gaping both anteriorly and posteriorly. In form obliquely trapezoid, anteriorly roundly truncate, concentrically rudely striate, and, centrally only, rayed from the

umbones to the ventral margin; rays much elevated, about eleven in number, broader towards the ventral margin, nodulous where the rude concentric striæ cross them. Within, slightly nacreous, showing, owing to its extreme tenuity, the precise obverse of the external sculpture; hinge with an elongate trigonal "fossa," and a marginal "lamina" in either valve.

The great thinness of the substance causes the shell often to be worn away at the umbones; this is owing to incessant friction in opening and shutting the valves. Here we have the typical *Pholadomya*, a more appropriate cognomen than which could not have been possibly coined, for the resemblance to a large *Pholas* (e. g. *P. costata*, L.) is very striking. Many extinct forms approach the recent shell both in size, facies, and ornamentation, and several even exceed it in beauty and magnitude. These are mainly Secondary and Tertiary fossils, especially abounding in the Liassic or Jurassic rocks. In the majority of instances, owing to the shell-substance having been originally so thin, they are mere casts, but are exact replicas of their former analogues in all salient particulars.

In 1842* Agassiz subdivided the genus into various sections, considering the presence or absence of a posterior area ("aire cardinale circonscrite") of primary consequence. Thirty-four years later, Meek, in 1876†, considered that only two divisions were worthy of establishment, viz.: *Pholadomya* (type, as before, *P. candida*, Sow.), distinguished by an elongate inæquilateral form, gaping at both extremities, and roundly truncate in front; and *Procardia*, to contain the short, gibbous, subtrigonal, extremely truncate, and often elevated forms, to which the greater proportion of the fossil species belong. These now exceed two hundred in number.

Turning again to the recent forms, the second, discovered only a few years ago, is *P. Loveni*, Jeffr., of the typical section of the genus, and we consider it here worth while reproducing Dr. Gwyn Jeffreys's original description, so as to place it side by side with that of our new species, to which, however, it does not bear much near resemblance. This is a remarkably interesting

* L. Agassiz, Études critiques sur les Mollusques fossiles: Neuchâtel, 1842-45.

† A Report on the Invertebrate Cretaceous and Tertiary Fossils of the Upper Missouri country: U.S. Geol. Survey of the Territories (Meek), 1876.

mollusc, evidently of wide distribution, ranging from the mid-Atlantic Ocean to Sicilian localities in the Mediterranean.

"*Pholadomya Loveni*, Jeffreys, Proc. Zool. Soc. 1881 ('Lightning' and 'Porcupine' Exped., 1868-70), p. 934, pl. lxx. fig. 7.

"Shell inequilateral, wedge-shaped, gaping at the posterior end, convex, of a pearly nature, partly semi-transparent, lustreless; *sculpture*, 10-12 longitudinal ribs, besides some intermediate striæ; these are more or less interrupted by strong periodical marks of growth, so as to give the ribs a nodulous appearance; the sides are ribless; the whole surface is covered with minute prickly tubercles; *colour* white; *margins* rounded on the anterior side, inclining upwards towards the other side, which is also rounded but slightly truncate, sloping at the back from each side of the umbo; *beaks* bluntly triangular, turned inwards; umbones prominent; *ligamental pit* in the right valve obtuse-angled, placed outside underneath the beak, and defined outwards by a thin plate; *hinge-line* sloping towards the posterior side; *hinge-plate* thin, sinuous, reflected; *teeth* none; *inside* highly glossy and nacreous; *scars* conspicuous. L. 0·4, B. 0·5.

"'Porcupine' Exped. 1870; Atl. St. 22, 28 a; Med. 55.

"None of the specimens are quite perfect. One of them indicates twice the size given in the description. That figured is from the 'Josephine' Expedition.

"*Dist.* Palermo, frequent (Monterosato), 162 fathoms. Off Marseilles ('Travailleur' Exped. 1881); Villa Franca, Azores ('Josephine' Exped.), 320-600 fathoms."—*J. G. J.*

Into the two groups proposed by Meek we are unable precisely to allocate the *P. Haddoni*. To this, indeed, we can find nothing near akin, unless an obscure species described by Mr. Bullen Newton in 1892*, as occurring in the Upper Keuper Sandstone, Shrewley, Warwickshire, prove its ally. Certainly from figure and description it appears analogous, particularly as to being nearly equilateral, with radiately ribbed surface, these ribs, however, being far more pronounced. It was provisionally named *Pholadomya* (?) *Richardsii*, after Mr. E. P. Richards, the discoverer.

From the differentiation we have given above, and which need not be recapitulated, we plead justification for the creation of a

* J. of Conch. vii. p. 411, fig. 2 (1894).

new subgeneric division. It only remains to say that several examples (mostly, however, single valves, though one at least occurred quite perfect) were found of *P. Haddoni*, dredged at about 5 to 6 fathoms in the localities above cited. It is not, therefore, a deep-sea form.

In dedicating this mollusc to its discoverer, we would once again tender him our best thanks for having given us every facility and latitude in the preparation of this Report; and, we may add, it is by his express desire that all the types have been permanently deposited in our National Collection at the British Museum (Natural History), South Kensington.

EXPLANATION OF THE PLATES.

PLATE 10.

- Fig. 1. *Murex (Ptercnotus) saibaiensis*, sp. n.
 2. *Murex (Ocinebra) salmonesus*, sp. n.
 3. *Nassa (Alectryon) fretorum*, sp. n.
 4. *Mangilia chionea*, sp. n.
 5. *Triforis (Ino) excelsior*, sp. n.
 6. *Bittium torresiense*, sp. n.
 7. *Eulima australasiaca*, sp. n.
 8, 8 a. *Magadis eumerintha*, sp. n.
 9. *Calliostoma (Eutrochus) septenarium*, sp. n.
 10, 10 a. *Microtheca Acidalia*, sp. n.
 11. *Phenacolepas lingua-viverræ*, sp. n.
 12. *Loripes Haddoni*, sp. n.
 13. *Tellimya ephippiolum*, sp. n.
 14. *Kellia physema*, sp. n.
 15. *Barbatia (Acar) aceræa*, sp. n.
 16. *Tellina (Angulus) procrita*, sp. n.

PLATE 11.

- Fig. 17, 17 a. *Diplodonta ethima*, sp. n.
 18. *Psammobia rasilis*, sp. n.
 19, 19 a. *Lima (Limatula) torresiana*, E. A. Smith, var.
 20. *Cardium (Trachycardium) serricostatum*, sp. n.
 21. *Cardium (Trachycardium) transcendens*, sp. n.
 22, 22 a, 22 b. *Pholadomya Haddoni*, sp. n.
 23, 23 a. *Chione (Omphaloclathrum) embrithes*, sp. n.
 24. *Pectunculus Hoylei*, sp. n.
 25, 25 a. *Cardium (Trachycardium) dianthinum*, sp. n.
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